ANNUAL FINFISH MANAGEMENT REPORT

1979

by
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PREFACE

This is the twentieth annual management report prepared since the State assumed control of the fisheries from the federal government in 1960. The 1979 data is preliminary and will be finalized and corrected in subsequent reports. Data presented here supersedes information presented in previous management reports.

The report presents a brief description of the 1979 fishery and summarizes recent historical catch, escapement and related data on each species harvested by the commercial fishery.

The report is compiled primarily for use as a reference source for management purposes. Persons desiring additional information should direct a specific request to the area office in Cordova.

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INTRODUCTION

The Prince William Sound commercial fisheries management area is located in the northcentral Gulf of Alaska and comprises all of the drainages in Alaska from Cape Suckling on the east to Cape Fairfield on the west. This area encompasses the water of Controller Bay, Copper River, Prince William Sound and several small rivers and streams entering the Copper River Delta and Gulf of Alaska. In land area, the Prince William Sound commercial fisheries management area includes approximately 38,000 square miles, most of which is drained by the Copper River entering the Gulf of Alaska east of Prince William Sound, Figure 1.

SALMON

The Prince William Sound management area is divided into eleven salmon management districts (Figure 1) and five salmon management subdistricts which conform to geographical and biological distribution of the salmon species harvested.

Bering River district includes all the water between Cape Martin on the west and Cape Suckling on the east including Controller Bay and Katalla Bay. This small drift gill net salmon fishery harvests about one percent of the area's sockeye catch and about 25 percent of the coho catch. Small incidental catches of king, pink and chum salmon are taken during each season and amount to less than one percent of the district catch.

Copper River district includes all the water between Cape Martin on the east and Hook Point, Hinchinbrook Island on the west, and is separated from Prince William Sound's Eastern District by a boundary line from Boswell Rock, Hinchinbrook Island to the radio tower at Whitshed Village on the mainland shore southwest of Cordova. The Copper River district supports the major drift gill net salmon fishery of the area and harvests all five species of salmon although the target species of the district are sockeye during the spring and summer fishery and coho in the fall. The district fishery harvests about 97 percent of the area's king salmon catch, 65 percent of the sockeye, 72 percent of the coho, and incidental amounts of pink and chum salmon.

The Unakwik District is located in the north central part of Prince William Sound and includes the water of northern Unakwik Inlet north of 61° 01' N. lat. The district was established to harvest small runs of sockeye salmon returning to Cowpen Lake and Miners Lake systems. Usually less than 10,000 sockeye are taken each year. In 1979 the district sockeye catch represented about two percent of the Area's sockeye catch.

The Unakwik season coincides with the Coghill district season and gear. Both purse seine and drift gill net gear are fished from June 18 until the end of the general season.

Coghill District, located in northwestern Prince William Sound, includes all of the water of Port Wells north of 60° 48' 30" N. lat., all the water within one nautical mile of the south shore of Esther Island including Esther Passage. (Prior to 1976 the western one-half of Port Wells was included in the Northwestern District).

The Coghill district was established primarily to harvest the sockeye salmon returning to Coghill Lake; however, significant numbers of pinks and chums are taken and the numbers of these species commonly exceed the sockeye catch. There is a tremendous variation in the numbers of odd and even year pinks returning to Coghill River. Spawning escapement estimates have range from 552,060 in 1975 to an even year average of about 9,000 pinks. The district catch by species in 1979 contributed about 21 percent of the area's sockeye catch, two percent of the pink catch and about 18 percent of the chum catch. Small incidental catches of kings and cohos are taken each year.

Both purse seine and drift gill net gear are used in the district. When the Coghill district season begins on June 18 a large influx of gear moves into the district from the Copper River flats, and consequently, the Copper River effort is reduced by almost half.

Eshamy district is located on the western central mainland shore of Prince William Sound. The district includes the water within one nautical mile of the mainland shore from the outer point on the north shore of Granite Bay on the south end of the district to the light on the south shore of the entrance to Port Nellie Juan on the north end of the district.

The district was established to harvest a run of sockeye salmon returning to the Eshamy Lake system. The Eshamy district fishery catches all five species of salmon. Sockeye is the target species; however, substantial numbers of pinks and chums are intercepted which are primarily bound for other districts in the Sound. Small numbers of kings and cohos are caught in the district. In 1979 the district was closed to fishing.

Both set and drift gill net gear are used in the Eshamy district with drift gear far outnumbering the set gear.

The General districts of Prince William Sound include the Eastern, Northern, Northwestern, Southwestern, Montague and Southeastern districts, which include the remainder of Prince William Sound. Purse seines are the legal gear, and the primary target species are pink and chum salmon. Forecasts of returning pinks and chums are made each year based on pre-emergent fry data, and purse seine seasons set accordingly. Season openings are usually published in the regulations, and season closures made by emergency order.

Purse seines normally harvest the majority of the pinks and chums of the area's catch from the General districts. In 1979 the General districts produced about two percent of the sockeye, 98 percent of the pink and 75 percent of the chum catch. Incidental and usually insignificant numbers of kings and cohos are also taken from the General districts.

HERRING

Herring fishing districts were established by regulation in 1977 as a result of limited entry into the herring sac roe fishery. These districts generally include the water surrounding Montague and Green Islands and designated the Montague district; the Northern district which includes all of Valdez Arm and Port Valdez, all of Columbia Bay and Long Bay and water surrounding Glacier Island and Bligh Island; and, the General district which

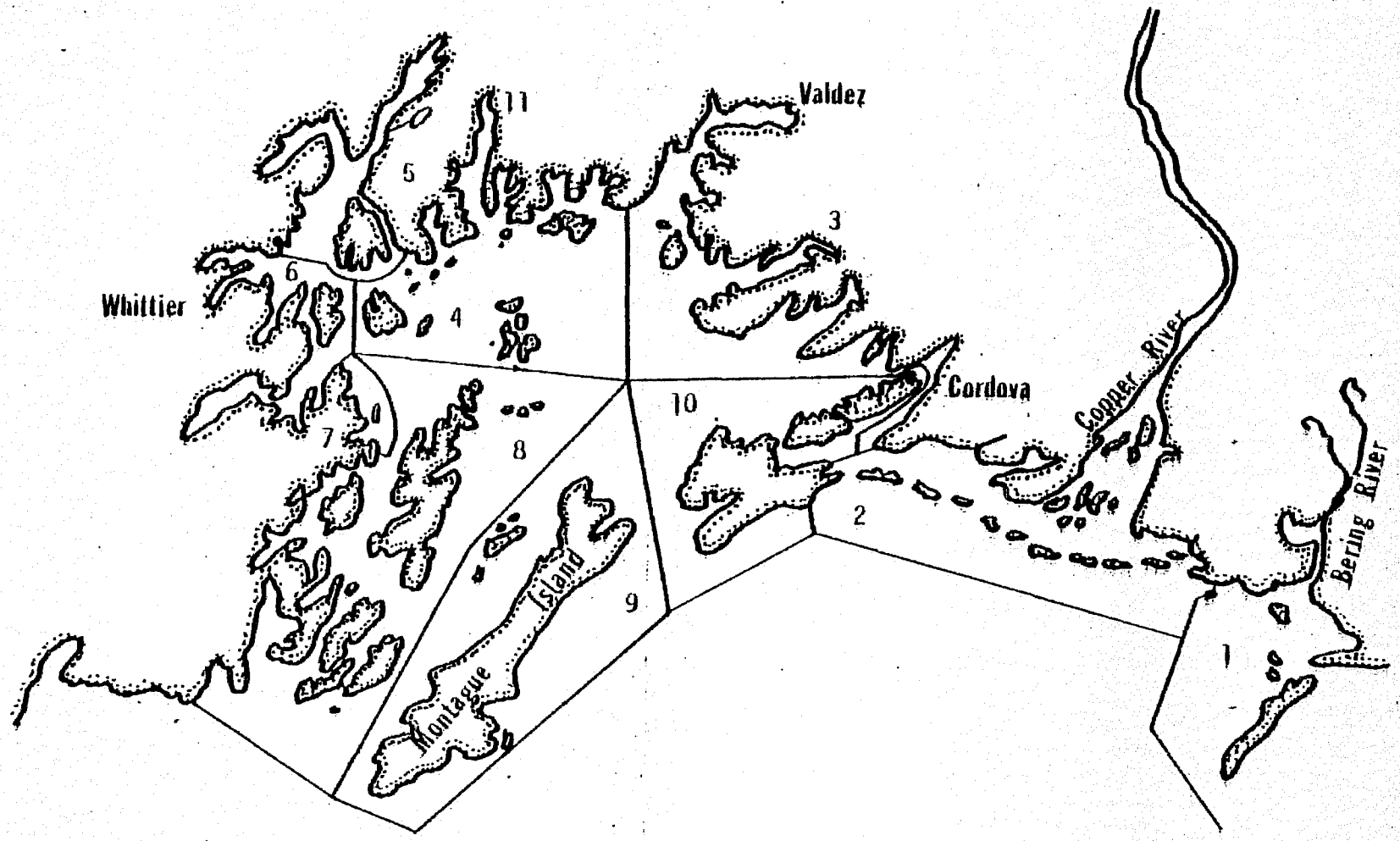
includes all water of Alaska between the longitude of Cape Fairfield and the longitude of Cape Suckling, exclusive of the Montague and Northern districts described earlier. Because of limited entry into the herring sac roe fishery the Montague and Northern districts were established exclusively for this herring fishery. The General district remained unregulated to limited entry allowing open fishing for the so-called herring food and bait fishery.

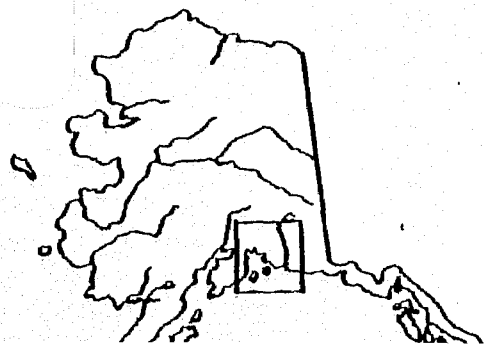
Herring have a long history of commercial fishing in the Prince William Sound Area dating back to 1914, and until about 1958 was used almost exclusively for reduction purposes. From the demise of the reduction fishery until 1969 only occasional catches were made for bait purposes. The year 1969 was the beginning of a new fishery where herring were taken for roe which was salted in containers and sold in Japanese markets. This herring sac roe fishery grew rapidly with good market conditions, reaching a peak harvest of 6,983 tons in 1973, Table 23.

As a result of the intensiveness of the herring sac roe fishery, vulnerability and the high exploitation rate of the herring, a quota of 5,000 tons was established in 1974. The quota was exceeded two years, in 1974 and 1975, after the quota was established, Table 23.

The herring spawn on kelp fishery started the same year the roe fishery was initated in 1969. The first experimental harvest of herring spawn on kelp was taken from Johnston Cove and Landlocked Bay in northeastern Prince William Sound. It has grown into an annual fishery with a peak harvest of 458.5 tons in 1975, Table 23. Recent concern about the depletion of kelp beds (Laminaria sp.) resulted in several regulations. Notable of these was the recent Board of Fisheries regulation to limit the method of harvesting to a hand-held unpowered blade-cutting device, and required the kelp blades to be cut at least four inches above the stipe.

Herring spawning areas in 1979 are shown in Figure 13.





Fishing Districts

1. Bering River
2. Copper River
3. Eastern
4. Northern
5. Coghill
6. Northwestern
7. Eshamy
8. Southwestern
9. Montague
10. Southeastern
11. Unakwik

COPPER RIVER DISTRICT

Introduction. - The Copper River district includes all water of Hinchinbrook Island between Hook Point and Boswell Rock including Boswell Bay water south of a line from Boswell Rock to the radio tower at Whitshed Village, and water between Whitshed Village and Cape Martin.

Commercial fishing for sockeye salmon in this district begins on May 15 of each year, and is regulated by a series of equal open and closed fishing periods. Prior to August 7 fishing is permitted from 6:00 a.m. Monday to 6:00 a.m. Wednesday, and from 6:00 p.m. Thursday until 6:00 a.m. Saturday. From August 7 to August 31, fishing is permitted from 6:00 a.m. Monday until 6:00 p.m. Thursday. After August 31, fishing is permitted from 7:00 a.m. Monday until 7:00 p.m. Thursday.

The major commercial harvest occurs on sockeye and coho salmon although king, chum and pink salmon are also taken incidentally. Each boat registered to fish this district is allowed a maximum of 150 fathoms of drift gill net gear.

Prior to 1978 the in-season management of this fishery was based upon catch per unit of effort data. Escapement trends were unknown until sockeye returns reached the subsistence fishery in the Chitina area of the upper Copper River. The time lag between the commercial fishery and the subsistence fishery may be 30 or more days. Because of this, adjustments in fishing times have been made after the fact, and if overharvest occurred, adjustments were late.

In 1978 and 1979 an electronic system was installed above the fishery which utilized a sonar method of enumerating escapement. Although initial management decisions to decrease fishing time were dictated by catch per unit of effort information, the sonar enumeration system verified the catch per unit of effort data and identified weaker portions of the return and indicated when the fishery could be resumed.

SOCKEYE SALMON

Catch. - The Copper River sockeye salmon drift gill net fishery opened on May 15, but as in many past years, fishermen and processor price settlements had not been reached, and it was not until May 25 that actual fishing commenced.

During the first day and one-half of open fishing 40,524 sockeye salmon were harvested. The catch was slightly below the 16 year average, but because only three cash buyers participated in the opening period, limited tender service restricted the fishermen somewhat and decreased fishing effort.

The fishery again opened on May 28 for 48 hours, and the catch decreased to 35,268 sockeye salmon. Sonar counts of the upper Copper River escapement also showed a decrease, and the fishery was closed by emergency order.

Daily escapement counts over the next several weeks did not indicate a run buildup, and it was apparent that if minimum escapement goals were to be attained the fishery could not be reopened.

The season total sockeye catch of 80,820, Table 1, was the lowest recorded catch in the history of the fishery. Figure 2 presents catch and escapement data of this fishery for the past 11 years.

Subsistence Fishery. - In 1979, 2,730 dip net and 470 fish wheel permits were issued for the subsistence fishery in the Chitina area of the upper Copper River. This was 550 permits less than were issued in 1978. Preliminary figures show individuals fishing these permits harvested 23,599 sockeye, 2,515 kings and 752 cohos totaling 26,866 salmon. This total catch was 4,976 salmon above the total 1978 catch.

In the Glennallen subdistrict fishing was allowed from June 1 through September 30 for all salmon species. In the Chitina subdistrict fishing was allowed from June 30 through August 31 for king salmon only, and from September 1 through 30 for all salmon species.

Subisistence fishermen utilizing drift gill net gear on the Copper River flats harvested 26 sockeye, 45 kings and 17 coho. Forty-nine permits were issued, but only 17 fishermen reported catches.

Table 4 presents subsistence fishing statistics for the Prince William Sound Management Area.

Escapement. - As derived from the newly installed sonar counters, the upper Copper River sockeye salmon escapement of 237,173 was 112,827 below the escapement goal of 350,000, but the overall distribution of spawners into the various spawning streams was very good.

Escapements of sockeye salmon into spawning systems of the Copper River delta were extremely good, and as in the streams of the upper Copper River, the distribution was excellent.

Table 5 compares escapement estimates for selected systems in the upriver and delta areas for the years 1966 - 1979 while Table 2 presents Copper River and Bering River sockeye, chinook, and coho salmon escapements in 1979. Expected upriver escapement by week based upon percent of average weekly sockeye salmon catch from the Copper River district to produce 350,000 desired escapement and 250,000 minimum escapement is shown in Table 7 The Copper River sonar counts are listed by day and specie in Table 6.

KING SALMON

Catch. - The king salmon fishery is an incidental catch fishery with the run timing coinciding with the upriver sockeye run.

Unlike the sockeye return, the 1979 king salmon return was strong, and although the drift gill net season was only opened for three and one-half days, above average catches of kings were made during the periods fished. The total king salmon catch of 17,308 for the three and one-half day season was about average for a normal season, Table 1.

Escapement. - Escapement of king salmon to the upper Copper River spawning tributaries is shown in Table 2 ..

COHO SALMON

Catch. - A price settlement between fisherme
reached early in the season, and the coho salmon
It was evident, after the first two periods, that
strong, and the fishery continued uninterrupted u
September 28. The season total catch of 195,608
above average and the third largest recorded for
Figure 3 presents the coho salmon catches for th

Escapement. - Coho salmon surveys can usuall
the early fall. Adverse weather prevented any ex
from the coho spawning stream surveys flown early
that escapements would be above average.

Table 1. Copper River commercial salmon catch by period, 1979. *

Period	King	Sockeye	Coho	Pink	Chum	Total
5/17 - 19	43	4				47
5/24 - 26	10,430	40,524				50,954
5/28 - 30	6,822	35,268	1	1	68	42,160
8/ 6- 9	3	3,368	10,625	822	4	14,822
8/13 - 16	2	800	19,090	109	5	20,006
8/20 - 23	8	563	47,785	248	2	48,606
8/27 - 30		151	34,508	56	2	34,717
9/ 3 - 6		25	47,246	9	1	47,281
9/10 - 13		12	17,727	1		17,740
9/17 - 20		5	15,571		2	15,578
9/24 - 27			3,067			3,067
TOTAL	17,308	80,720	195,620	1,246	84	294,978

* Preliminary.

ACE10323517

Table 2. Copper River and Bering River sockeye, chino escapement, 1979. 1/

Location	Glacial	Date 2/	Method
Bremner River			
Peninsula Lake		8/3	A
Salmon Creek		8/3	A
Steam Boat Lake		8/3	A
Unnamed Creek		8/3	A
Tiekel River Lake		8/3	A
Tonsina River	Glacial		
Lower Tonsina Creek		NS	
Little Tonsina River		8/3	A
Tonsina Lake	Glacial	10/15	A
Bernard Creek		NS	
Grayling Creek		8/3	A
Klutina River	Glacial		
Manker Creek		8/3	A
Mahlo Creek		8/3	A
Hallet Slough	Glacial	NS	
Curtis Creek		NS	
St. Anne Creek		8/3	A
Tazlina River	Glacial		
Mendeltna Creek		9/7	A
Kiana Creek		8/3	A
Tazlina Lake		NS	
Gulkana River			
Mouth to West Fork		7/4	A
West Fork		7/19	A
Moose Creek		NS	
Keg Creek		7/19	A
Victor Creek		7/19	A
West Fork to Middle Fork		7/19	A
Middle Fork		7/19	A
Dickey Lake		8/13	A
Swede Lake		8/13	A
Hungry Hollow		9/24	A & W
East Fork to Paxson Lake		8/13	A
Paxson Lake		8/13	A
Paxson Lake Inlet		9/7	A
Inlet to Mud Creek		8/13	A
Mud Creek		9/7	A
Mud Lake		9/7	A
Mud Creek to Summit Lake		9/24	A
Fish Lake		8/13	A
" "			(Weir
Summit Lake		8/13	A
Gunn Creek		7/19	A

Table 2, cont. Copper River and Bering River sockeye, chinook and coho salmon escapement, 1979. 1/

Location	Glacial	Date 2/	Method	Sockeye	Chinook	Coho
Gakona River						
Spring Creek		NS				
Chistochina River	Glacial					
East Fork		7/19	A		810	
Eagle Creek		7/19	A	35	24	
Mankomen Lake		7/19	A	0		
Slana River	Glacial					
Mentasta Lake		8/13	A	2,500		
Fish Creek		8/13	A	350		
Bad Crossing #1		7/19	A	250		
Bad Crossing #2		7/19	A	400		
Bone Creek		7/19	A	35		
Slana Sloughs		7/19	A	100		
Suslota Lake		9/7	A	1,000		
Indian River		7/19	A		29	
Ahtell Creek		7/19	A		8	
Tanada Creek						
Tanada Lake		9/7	A	3,375		
Tanada Lake Outlet		9/7	A	1,850		
Tanada Creek (Total)			(Weir	10,287	5)	
Copper Creek						
Copper Lake		9/7	A	20		
Lakina River	Glacial					
Long Lake		10/15	A	3,100		
" "			(Weir	46,110)		
Clear Creek (Chitina River)		NS				
Tana River	Glacial					
Tana Clear Channels	Glacial	8/3	A	250	13	
Tana Lake Inlet		8/3	A	0		
West Fork Clear Channels		8/3	A	215		
Swan Lake (Copper River)		8/3	A	20		

3/ All produced by incubation system.

4/ Majority produced by incubation system.

ACE10323519

Table 3. Copper River aerial survey index of sockeye salmon spawning escapements, 1966 - 1979.

System	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	197
Eyak Lake	5400	800	1360	21000 1/	28742 1/	5800	12275	6000	4625	17500	8500	11000	16250	2100
McKinley Lake	4000	1200	0	500	5000	1700	600	1800	2000	8000	6000	15000	17500	2500
39 Mile Creek	4550	1120	2000	3000	5997	8270	14910	5511	2400	2500	3500	4500	6500	1750
Lake Tokun	4900		3500	700	19764	23000	1850	8000	1468	1200	8500	5500	6600	650
Little Martin Lake	1050	800	0	400	0	3000	3000	1500	1500	2000	8000	1550	3500	200
Martin Lake	7510	5400	1000	1500	600	3400	6500	2000	1500	460	4000	6087	10500	1200
Martin River Slough	2145	600	3500	4000	4450	5000	5000	1990	5000	400	2500	3100	6300	420
Copper River Delta Subtotal	29550	9920	11360	31100	64553	51270	44135	26801	18493	32060	41000	46737	67150	8820
Salmon Creek	275 *	275 *	275 *	0	0	275 *	0	200	400	0 P	300	275 *	50	45
Tonsina Lake	0	0	200	1100	500	500	250	300	200	250	900	432 *	4	77
Mahlo Creek	2550	2500	2200	750	5000	12400	1525	4500	500	314 G	600	5200	300	45
St. Anne Creek	2720	4500	3200	4300	18300	25100	1900	7400	2100	449 G	1700	7000	1150	73
Mendeltna Creek	3098	632	1350	6805 G	4700	870	1950	1200	332	325	900	3900	725	38
Keg Creek	0	0	810 *	1400	810 *	810 *	0	1435	190	256	125	725	1050	130
Dickey Lake	0	500	210	150	183	170	73	2500	10	25	0	650	75	1
Swede Lake	0	100	0	5	2	9	400	350	15	6	10	750	80	15
Paxson Lake Outlet	5300	2500	700	2578 *	3500	3400	2700	4300	1000	550	2100	3800	2500	190
Inlet to Mud Creek	4139	800	7000	3200	8850	7900	5818	10500	14300	2100	4200	6000	2700	540
Mud Creek and Lake	75	2000	750	600	1500	600	850	500	300	400	1100	650	150	46
Mud Cr. - Summit Lk.	1830	1200	2075	2500	4000	3250	1675	5700	2700	1200	1900	5900	800	260
Fish Lake	1500	2500	4000	400	13000	700 P	4500	6300	800	2800	900	8000	2650	170
Bad Crossing #1 & #2	100	0	5	4050	1650	6	0	9275	650	5	16	8400	600	65
Fish Creek)	300	50	115	300	1000	900	650	2200	450	200	250	6900	1300	35
Mentasta Lake)	500	800	500	2000	3800	2295	800	2700	700	450	600	3500	3600	250
Suslota Lake	320	6	550	800	4000	4550	4830	3400	400	0	100	300	1200	100
Tanada Lake	10	26	175	6	1100	4093	930	10	3100	700	6100	9100	2625	517
Long Lake	2066 *	1000	3000	5000	2000	2000	3000	150	750	1100	2450	877	1425	310
Tana River	404 *	404 *	404 *	404 *	50	404 *	180	1425	520	60	25	404 *	504	46
Upper Copper River Subtotal	25187	19793	27115	36348	73945	70232	32031	64345	29417	11190	24276	72763	23488	2952
TOTAL	54737	29713	38475	67448	138498	121502	76166	91146	47910	43250	65276	119500	90638	11772

1/ From sonar counter. * = interpolated. P = poor. G = ground survey.

562,329 = Average index Copper River Delta systems. 539,653 = Average index Upper Copper River systems

Table 4. Prince William Sound Area subsistence fishery - 1979.

Area	Number Permits Issued	Type of Gear	Catch			
			Sockeye	Kings	Cohos	Other 2/
Upper Copper River 1/	2,730	Dip Net	12,069	1,536	670	20
Upper Copper River 1/	470	Fishwheel	11,530	979	82	75
Copper River Flats	49	Drift Gill Net	26	45	17	0
Prince William Sound	15	Drift Gill Net	0	0	0	0
TOTAL	3,264		23,625	2,560	769	95

1/ Compiled from reports received through 2/26/80.

2/ Includes pink salmon, whitefish, steelhead, cutthroat, Dolly Varden, lamprey, lingcod and grayling.

Table 5. Comparable estimated sockeye salmon spawning escapements in selected systems, Copper River, 1973 - 1979. 1/

System	1973	1974	1975	1976	1977	1978	1979
Eyak Lake	6,000	4,625	17,500	8,500	11,000	16,250	21,000
McKinley Lake	1,800	2,000	8,000	6,000	15,000	17,500	25,000
39 Mile Creek	5,511	2,400	2,500	3,500	4,500	6,500	17,500
Lake Tokun	8,000	1,468 2/	1,200 3/	8,500	5,500	6,600	6,500
Little Martin Lake	1,500	1,500	2,000	8,000	1,550	3,500	2,000
Martin Lake	2,000	1,500	460	4,000	6,087	10,500	12,000
Martin River Slough	1,990	5,000	400	2,500	3,100	6,300	4,200
Copper River Delta Subtotal	26,801	18,493	32,060	41,000	46,737	67,150	88,200
Mentasta Lake	6,196	700	450	600	3,500	3,600	2,500
Gulkana River	32,812	15,780	7,766	19,693	28,071	19,664	27,234
St. Anne Creek	7,400	2,100	499	1,700	7,100	1,150	730
Mahlo Creek	4,500	500	314	600	5,200	300	450
Mendelta Creek	2,868	332	325	900	1,250	725	350
Upper Copper River Subtotal	53,776	19,412	9,254	23,493	45,121	25,439 4/	31,264
TOTAL	80,577	37,905	41,314	64,493	91,858	92,589	119,464

1/ Peak count estimates from aerial and ground counts unless otherwise noted.
2/ Weir counts.
3/ Weir count was 329 sockeye.
4/ Upper Copper River counts from aerial surveys.

Table 6. Copper River sonar counts, 1979.

Date	North Bank Red	North Bank King	South Bank Red	South Bank King	TOTAL Daily Red	TOTAL Cum.	TOTAL Daily King	TOTAL Cum.
May 18	28	12	353	152	381	381	164	164
19	36	16	451	193	487	868	209	373
20	63	27	784	336	847	1,715	363	736
21	89	38	1,110	476	1,199	2,914	514	1,250
22	142	61	1,774	761	1,916	4,830	822	2,072
23	215	92	2,686	1,151	2,901	7,731	1,243	3,315
24	252	137	3,150	1,711	3,402	11,133	1,848	5,163
25	178	127	2,219	1,588	2,397	13,530	1,715	6,878
26	365	108	4,562	1,347	4,927	18,457	1,455	8,333
27	386	166	6,435	470	6,821	25,278	636	8,969
28	205	44	2,563	547	2,768	28,046	591	9,560
29	289	51	3,616	638	3,905	31,951	689	10,249
30	274	31	7,208	801	7,482	39,433	832	11,081
31	269	14	8,386	441	8,655	48,088	455	11,536
June 1	454		3,624		4,078	52,166		
2	750		2,715		3,465	55,631		
3	686		2,850		3,536	59,167		
4	140		2,638		2,778	61,945		
5	728		3,624		4,352	66,297		
6	693		5,760		6,453	72,750		
7	1,814		5,217		7,031	79,781		
8	678		10,400		11,078	90,859		
9	768		7,217		7,985	98,844		
10	1,040		4,165		5,205	104,049		
11	218		4,208		4,426	108,475		
12	38		2,189		2,227	110,702		
13	262		3,641		3,903	114,605		
14	162		2,401		2,563	117,168		
15	354		2,997		3,351	120,519		
16	367		3,106		3,473	123,992		
17	490		4,150		4,640	128,632		
18	413		3,498		3,911	132,543		
19	360		3,053		3,413	135,956		
20	206		1,748		1,954	137,910		
21	235		1,988		2,223	140,133		
22	273		2,312		2,585	142,718		
23	302		2,563		2,865	145,583		
24	198		1,679		1,877	147,460		
25	318		2,695		3,013	150,473		
26	208		1,765		1,973	152,446		
27	139		1,176		1,315	153,761		
28	179		1,518		1,697	155,458		
29	153		1,297		1,450	156,908		
30	200		1,699		1,899	158,807		
July 1	280		2,371		2,651	161,458		
2	266		2,258		2,524	163,982		
3	302		2,557		2,859	166,841		
4	402		3,404		3,806	170,647		
5	317		2,691		3,008	173,655		
6	211		1,785		1,996	175,651		
7	94		798		892	176,543		

Table 6 cont., Copper River sonar counts, 1979.

Date	North Bank Red	North Bank King	South Bank Red	South Bank King	TOTAL Daily Red	TOTAL Cum.	TOTAL Daily King	TOTAL Cum.
July 8	221		1,870		2,091	178,634		
9	337		2,853		3,190	181,824		
10	444		3,765		4,209	186,033		
11	389		3,295		3,684	189,717		
12	344		2,918		3,262	192,979		
13	332		2,812		3,144	196,123		
14	435		3,689		4,124	200,247		
15	373		3,162		3,535	203,782		
16	546		4,629		5,175	208,957		
17	375		3,180		3,555	212,512		
18	397		3,363		3,760	216,272		
19	353		2,991		3,344	219,616		
20	287		2,429		2,716	222,332		
21	273		2,310		2,583	224,915		
22	212		1,800		2,012	226,927		
23	202		1,713		1,915	228,842		
24	230		1,952		2,182	231,024		
25	117		995		1,112	232,136		
26	81		690		771	232,907		
27	34		284		318	233,225		
28	41		346		387	233,612		
29	39		326		365	233,977		
30	52		439		491	234,468		
31	74		629		703	235,171		
Aug. 1	80		678		758	235,929		
2	40		339		379	236,308		
3	24		203		227	236,535		
4	30		256		286	236,821		
5	18		155		173	236,994		
6	11		92		103	237,097		
7	8		68		76	237,173		

Table 7. Expected upriver escapement by week based upon percent of average weekly sockeye salmon catch from the Copper River district to produce 350,000 desired escapement and 250,000 minimum escapement.

Dates	Week	Average Catch	Years	Percent	Minimum Escapement	Expected Average Escapement	Cumulative Expected Average Escapement	Expected Sonar Escapement
May 14-20	20	32,602	(9)	4.7	11,750	16,440	16,440	*
21-27	21	102,868	(15)	14.8	37,000	51,790	68,230	16,440
28- 3	22	144,653	(16)	20.9	52,250	73,140	141,370	68,230
June 4-10	23	132,503	(18)	19.1	47,650	66,840	208,210	141,370
11-17	24	76,753	(18)	11.1	27,750	38,840	247,050	208,210
18-24	25	61,650	(18)	8.9	22,250	31,140	278,190	247,050
25- 1	26	48,838	(17)	7.0	17,500	24,490	302,680	278,190
July 2- 8	27	33,387	(18)	4.8	12,000	16,790	319,470	302,680
9-15	28	27,032	(18)	3.9	9,750	13,640	333,110	319,470
16-22	29	16,415	(18)	2.4	6,000	8,390	341,500	333,110
23-29	30	10,429	(18)	1.5	3,750	5,240	346,740	341,500
30- 5	31	4,660	(17)	0.7	1,750	2,440	349,180	346,740
Aug. 6-12	32	1,476	(17)	0.2	500	690	349,870	349,180
13-19	33	298	(13)	0.04	100	130	350,000	349,870
AVERAGE		693,564			250,000	350,000*	350,000***	350,000**

*. Escapement upriver.
** 80,000 - 90,000 additional spawners required for Copper River Delta spawning areas.
*** Actual escapement requires subtraction of subsistence and sport fishery take.

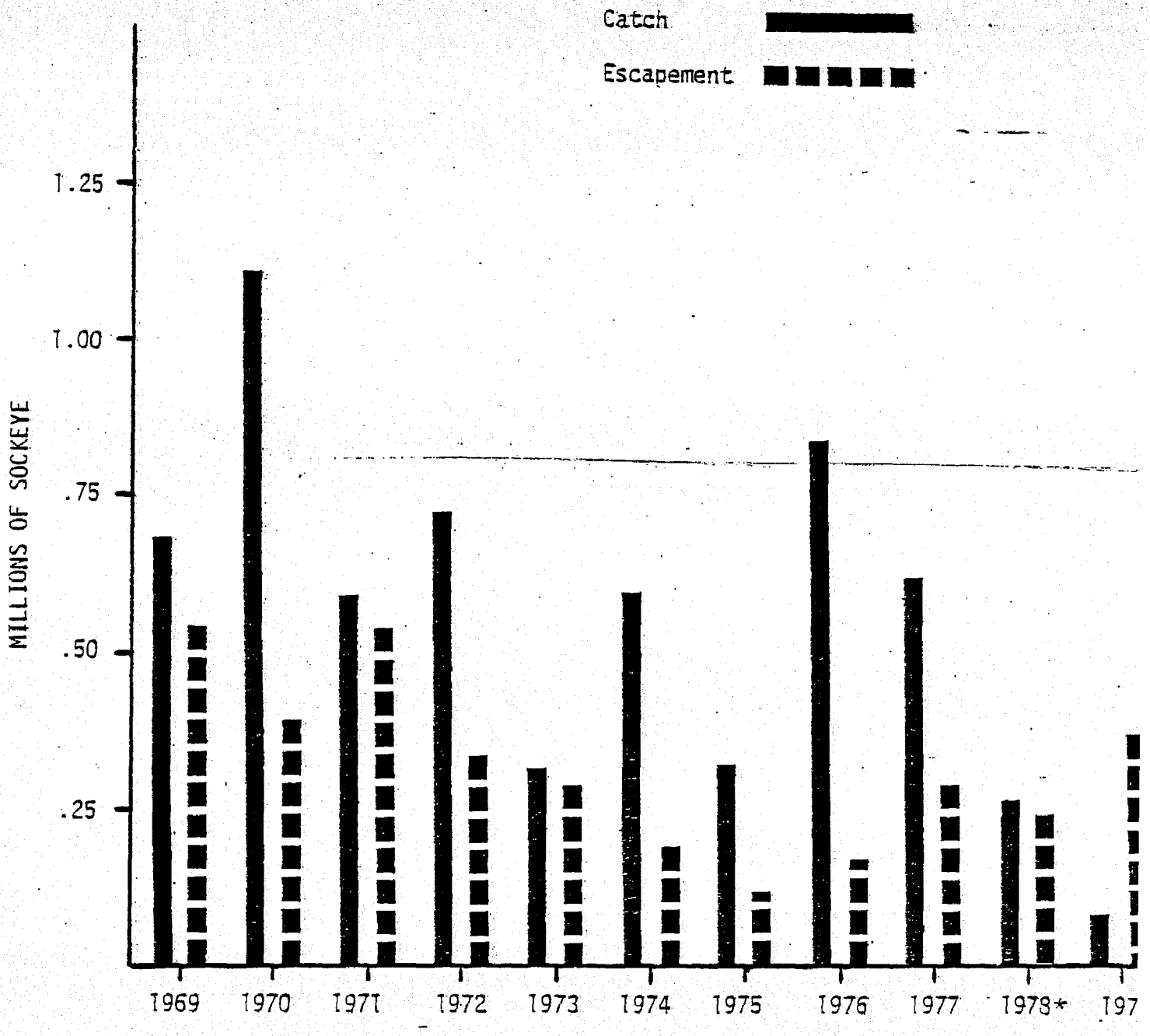


Figure 2. Copper River sockeye salmon catch and escapement, 1969 - 1979.

* Preliminary.

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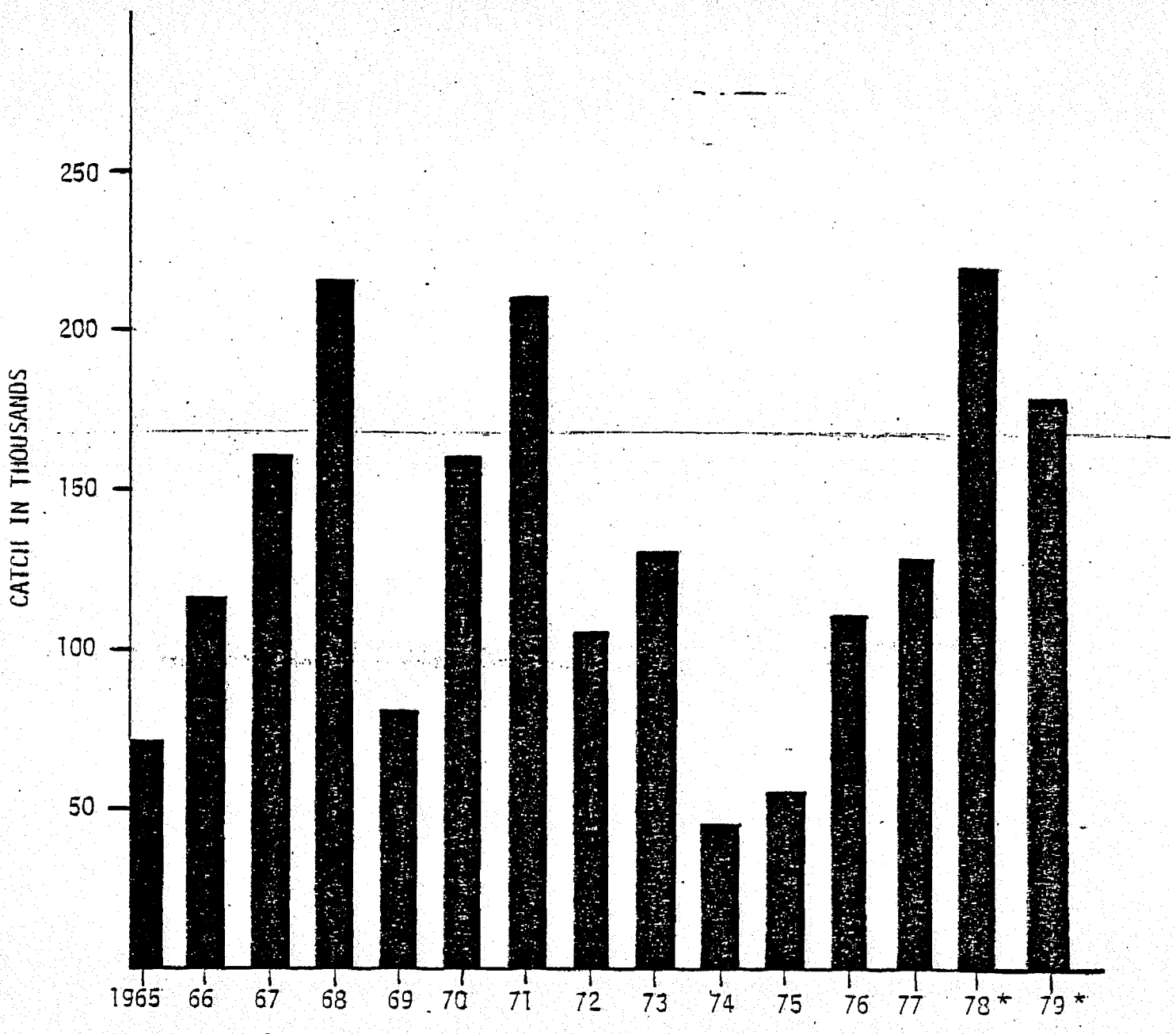

Figure 3. Copper River coho salmon catch, 1965 - 1979.

* Preliminary.

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BERING RIVER DISTRICT

Introduction. - The Bering River district includes all water between Cape Martin and Cape Suckling. Salmon commercially harvested in this district normally spawn in streams and rivers emptying into Controller Bay. Sockeye and coho salmon are the primary important species harvested in this district and are taken with drift gill net gear.

Weekly fishing periods are divided into two equal open and closed periods of three and one-half days each prior to August 7. Open fishing periods begin at 6:00 a.m. Monday and close at 6:00 a.m. Wednesday and from 6:00 p.m. Thursday until 6:00 a.m. Saturday. From August 7 to August 31 fishing is permitted from 6:00 a.m. Monday until 6:00 p.m. Thursday. After August 31, fishing is permitted from 7:00 a.m. Monday until 7:00 p.m. Thursday.

SOCKEYE SALMON

Catch. - The sockeye salmon drift gill net season commenced at 6:00 p.m. June 14. Increased effort in this fishery, above past years, was due to the Copper River district drift gill net closure. Because of the closure fishermen fished the district longer, expanded the normal area fished and prospected the off-shore three mile limit area. The staff was anticipating a sockeye catch in the 35,000 - 50,000 range, but when final deliveries were tabulated 139,029 sockeye salmon were harvested. This catch was the highest catch reported since 1923 when 192,361 sockeye were taken in this district. Table 8 presents the 1979 catch by period by species. Figure 4 compares sockeye catch and escapement data of this district for the years 1969 - 1979.

Escapement. - Because of abnormal weather in the form of fog and turbulence aerial sockeye salmon surveys were attempted, but could not be made until after the peak of spawning had occurred, and then only three of the nine streams usually surveyed could be flown. Estimates obtained compared favorably to escapements in past years.

COHO SALMON

Catch. - The opening of the coho salmon season on August 7 coincides with the opening of the Copper River district, but this district did not receive what can be considered concentrated effort until the week beginning August 18.

Like the coho salmon return to the Copper River district, the return to this district was also strong. Although storms hindered fishing effort during at least two periods, the season total catch of approximately 114,000 coho salmon set a new record high for this district, Table 8. Figure 5 presents coho salmon catches for this district for the years 1965 - 1979.

Escapement. - Coho salmon escapement surveys can usually only be flown during the early fall. Adverse weather, which is normal for this time of year, prevents any extensive surveys and comparable yearly escapement estimates cannot be made. From the coho spawning stream surveys that were flown early in the season it appeared that escapements would be above average.

Table 8. Bering River commercial salmon catch by period, 1979.*

Period	King	Sockeye	Coho	Pink	Chum	Total
6/11 - 16	128	22,047	27	341	960	23,503
6/18 - 23	118	44,329	205	1,649	11,930	58,231
6/25 - 30	18	20,422	47	202	2,118	22,807
7/ 2 - 7	71	35,216	1,265	1,757	5,887	44,196
7/ 9 - 14	36	10,033	913	1,024	1,695	13,701
7/16 - 21	8	6,380	686	1,561	563	9,198
7/23 - 28	5	478	157	125	28	793
7/30 - 8/4		64	3	107	8	182
8/ 6 - 9		37		27		64
8/13 - 16			130			130
8/20 - 23		8	10,237	45		10,290
8/27 - 30 12		13	24,881	13		24,907
9/ 3 - 6		2	45,913	1		45,916
9/10 - 13			21,635	1		21,636
9/17 - 20			6,411			6,411
9/24 - 27			1,406		1	1,407
TOTAL	384	139,029	113,916	6,853	23,190	283,372

* Preliminary.

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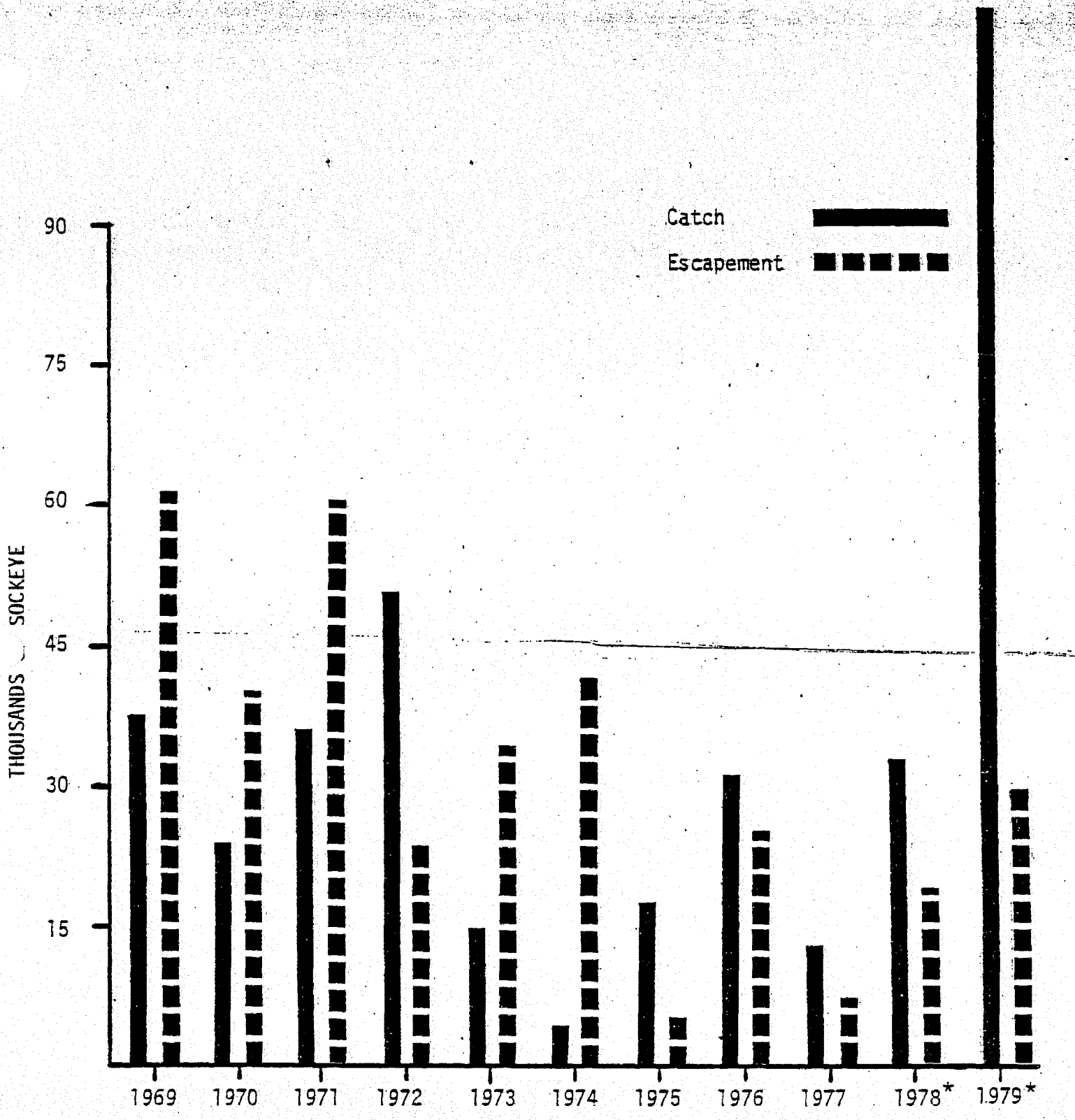

Figure 4. Bering River sockeye salmon catch and escapement, 1969 - 1979.

* Preliminary.

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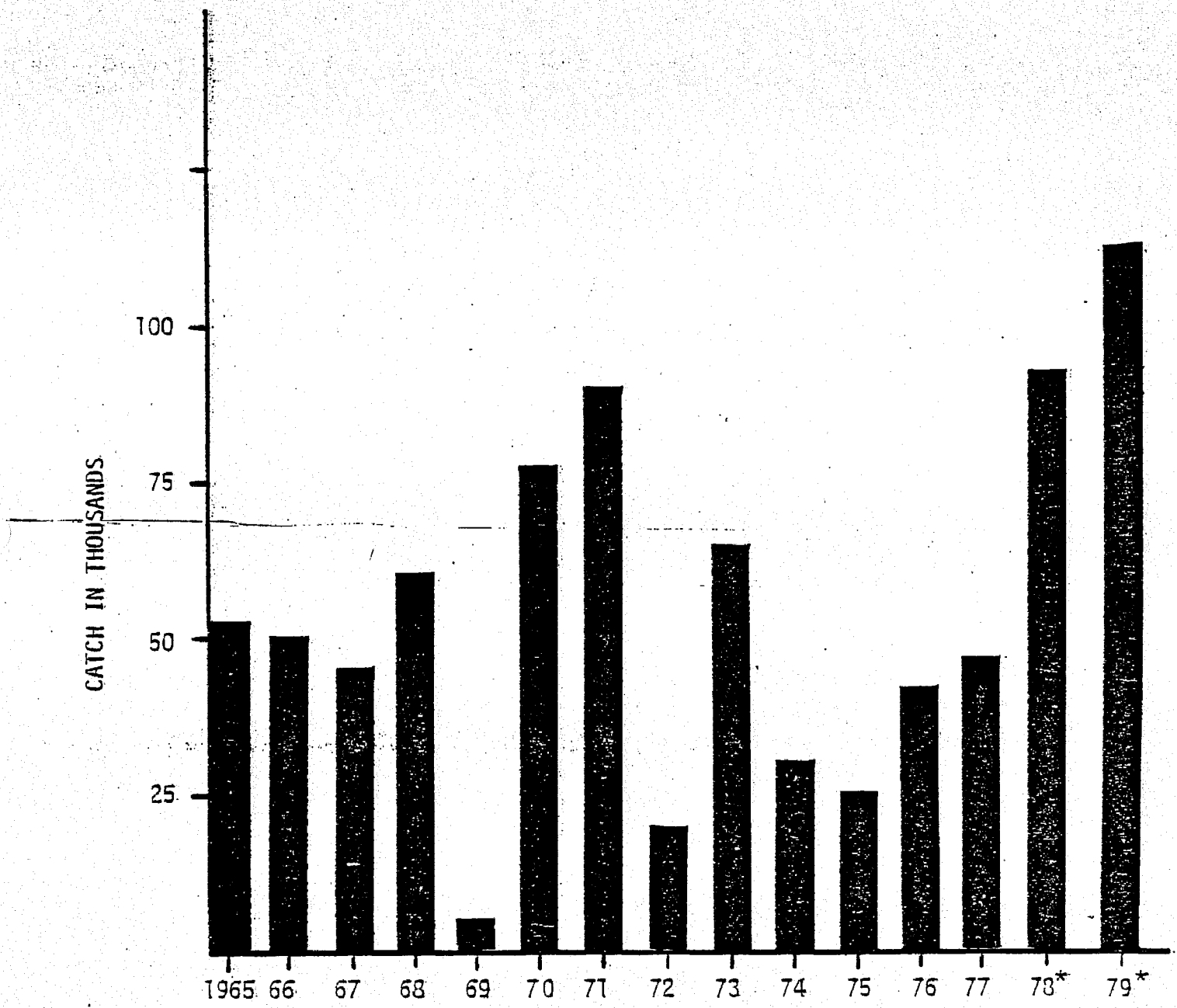


Figure 5. Bering River coho salmon catch, 1965 - 1979.

* Preliminary.

Introduction. - The Prince William Sound Area comprises all of the drainages entering the Gulf of Alaska between Cape Suckling and Cape Fairfield. The area includes the Bering River, Copper River, and all of Prince William Sound.

Fisheries of the area harvest five species of salmon utilizing three types of salmon net gear:, drift gill nets, purse seines, and set nets.

Drift gill nets are the most numerous and are used in the Bering River, Copper River, Coghill - Unakwik and Eshamy fishery districts. In 1979, 601 permanent and interim use gill net permits were issued for this area.

Purse seines are second in abundance and are utilized primarily to harvest pink and chum salmon in the general districts of Prince William Sound. In 1979, 292 purse seine permits were issued for the area.

Since 1960, when the State assumed the management of the salmon fisheries, the Prince William Sound area has realized an average annual harvest of approximately 5.3 million salmon. In 1979 the value of this fishery, paid to the fishermen, was approximately $31.4 million.

A staff of two management and three research biologists conduct the research and management programs of the Prince William Sound fishery.

Figure 1 is a map of Prince William Sound Area commercial fisheries salmon management areas.

Figure 6 presents the annual salmon catch for this area for the years of 1960 - 1979.

The following report discusses and presents statistics of the 1979 season by fishing district.

PRINCE WILLIAM SOUND GENERAL DISTRICTS

Introduction. - The General districts include all of Prince William Sound, exclusive of the Coghill, Unakwik, and Eshamy districts, and is made up of the Eastern, Northern, Northwestern, Southwestern, Montague, and Southeastern districts inclusively (Figure 1). The legal gear is purse seine, and the fishery is managed primarily for pink and chum salmon which provide about 95 percent of all the species catch.

Fishing seasons vary from year to year, but generally begin in early or mid-July (late July in some years) depending upon the strength of various segments of the runs, and usually extend into the first or second week of August. For several years the weekly fishing was five days per week, 6:00 a.m. Monday until 6:00 a.m. Saturday, but in 1970 the weekly fishing time was changed to 6:00 a.m. Monday until 9:00 p.m. Friday, which is the present weekly fishing period.

Legal gear, as indicated, is purse seine, and each seine is limited to a maximum of 150 fathoms in length and a maximum depth of 17 fathoms. Leads of a maximum length of 75 fathoms may be used with the purse seine. Two methods of using seine leads have been employed in Prince William Sound: 1) attaching the lead to the shore and fastening the outer end to the seine by use of the seine jitney (skiff). Fishing done in this manner is referred to as a hook haul; and, 2) double-pinning the lead and seine (overlapping) and using the whole as a single net. The seine and lead are often used in this manner to make open water tow-hauls.

PINK SALMON

Forecast. - The preliminary forecast of the 1979 pink salmon return was for a point estimate of 8.1 million with a range estimate of 6.5 million to 9.7 million, based upon pre-emergent fry indices obtained from a standard list of streams and sample zones. A supplemental production point estimate of 340,000 was also forecast with a range estimate of 170,000 to 510,000. The combined forecast point estimate for 1979 was 8.4 million pinks. (Informational Leaflet No. 177, January 1979).

The total pink salmon return estimated from catch and escapement was 18.4 million which compares to the upper range of the forecast of 10.2 million. The percent of error is - 190.43, Table 9 .

Catch. - The catch for the general districts by week by purse seines is shown in Table 10. Figures 7 and 8 show the odd and even year pink salmon catch and escapement for all districts.

The Prince William Sound 1979 general purse seine fishery was scheduled to open on July 16 in all districts except Eshamy, Coghill, and Unakwik (Coghill and Unakwik opened earlier). Aerial spawning escapement surveys conducted in mid-June showed earlier and stronger than anticipated pink salmon runs, and the purse seine season was opened by emergency order on June 27 in the Eastern, Southwestern, and Culross subdistrict.

After the first weekly fishing period, ending on June 30, it was apparent from the catch of 1.2 million pinks that a strong pink run was building as forecasted. Subsequently, the Northern, Northwestern, Montague, and Southeastern

districts were opened to purse seining on July 9. As the season progressed with weekly catches of about 2 to 3.5 million pinks, it soon became apparent that the pink forecast would be exceeded and that the run would probably approach previous record highs of the mid 1940's. There were in-season concerns during the peak of the fishery of whether the processors could handle the continuing record breaking catches. On August 1st all processors, except two, discontinued buying salmon in Prince William Sound for a 24-hour period. Except for the one period all processors operated throughout the season without major problems. They claimed no operational problem of handling the catch and further claimed the salmon quality was generally above average.

Preliminary catch data showed a pink catch of about 15.4 million from wild stocks of Prince William Sound. Coupled with estimated escapement counts of 2.9 million, the total return was about 18.30 million pink. The pink run in 1979 establishes a new record high and exceeds by 5.0 million the previous historical high of 13.4 million recorded in 1945. Wild pink stocks returned to Prince William Sound at the fantastic ratio of about 10.8 to 1 as a result of the 1.7 million parent spawners in 1977.

Escapement. - Aerial spawning escapement surveys were flown weekly throughout the season and escapements were generally above average to excellent except for some of the northern and northwest streams of Prince William Sound. As the season progressed and fishing pressure concentrated in the Hawkins Cutoff and north shore Hawkins Island area, it was necessary to make two adjustments in fishing areas to allow additional escapement to three specific streams. Pink spawning escapements distribution in the Northern, Coghill, and Northwestern districts were poor with the major portion of the escapement to these districts being located in four streams.

Indications obtained from catch and spawning escapement distribution show that the major portion of the returning pink run was produced in the southern one-half of Prince William Sound and primarily in the 1964 earthquake uplift zone. There were exceptions as previously mentioned in the Northern district. Jonah Creek and Wells River contained about 163,000 pinks or 73 percent of the total Northern district escapement. Shrode Creek in the Northwestern district had a pink escapement of 138,300 which represents 79 percent of the district escapement.

Pink salmon spawning escapement estimates are presented in Table 12. The Northwestern and Coghill districts were the only areas that did not receive the minimum desired escapement level. All other districts received excellent pink spawning escapements and exceeded the upper desired level in all cases. The Southeastern district received a fantastic number of pink spawners, but surprisingly, the streams did not appear overcrowded, and distribution in the streams was excellent with pinks spawning from tidewater to the uppermost reaches of the streams. This characteristic is common for odd-year pink spawners which have a tendency to utilize the entire accessible stream area, particularly during years of abundance.

Because the spawning escapements were assured, the general seine season was allowed to remain open until August 28 which resulted in the longest Prince William Sound fishing season since 1928.

All segments of the pink run were strong with the middle run making up the major portion of the return.

CHUM SALMON

Forecast. - The chum salmon forecast is based upon the average percentage contribution of four-year-old fish. The preliminary forecast for the 1979 chum return was a point estimate of 360,000 with a range of 10,000 to 700,000 based upon pre-emergent fry indices similar to those used for pink salmon (Informational Leaflet No. 177).

Total chum salmon return estimated from catch and escapement totaled 421,720 which is in the upper range of the forecast. The percent of error is - 16.30, Table 9.

Catch. - The catch for the general districts by week for all species is shown in Table 10. Figure 9 shows the chum salmon catch and escapement since 1969. A catch of 261,181 chums were reported taken from the general districts by purse seines which represents 75 percent of the total chums reported caught from the Prince William Sound Area.

Chum production came primarily from early and middle segments of the run from fish destined mostly to streams in the Eastern and Northern districts.

The total area catch of 324,040 compares to a ten year average of about 420,000 which represents about 83 percent of average. Table 11 presents the chum salmon catch for all gear for all Prince William Sound districts from 1968.

Table 13 shows the age composition of the 1979 chum salmon from the commercial catch to be predominantly four-year fish. A strong representation of five-year olds (17.46 percent) probably, in part, contributed to the higher than forecast return in 1979.

Escapement. - Weekly aerial spawning escapement counts and periodic ground surveys were conducted throughout the season beginning in late June and terminating in mid-September. Estimated chum salmon escapement by district is summarized in Table 12 which also shows a comparison with desired escapement levels. All districts received escapements below the desired levels and very few to no chums returned to the Southwestern and Montague districts. The total estimated escapement of 98,000 is about 49 percent of the minimum desired.

The 1979 chum return is primarily from the disasterous low escapement (47,000) of the parent year 1975. The 1979 chum salmon escapement shows a definite improvement over the parent year 1975. Figure 9 presents a graph of both catch and escapement for all districts for the period 1969 to 1979.

In-season closures of Unakwik Inlet and the Port Fidalgo subdistrict helped to increase the chum escapement to Jonah and Siwash Creeks in the Northern district and to streams at the head of Port Fidalgo.

OTHER SALMON

Catch. - Other incidental salmon catches taken during the General Districts purse seine fishery include sockeye, coho, and king. Significant catches of sockeye salmon are taken from the General District by purse seines with a recent high catch of 285,584 being taken in 1969. Table 10 shows the 1979 catch to be 59,510. Several lake systems in Prince William Sound contribute to the sockeye catch, and among the more significant sockeye producers are Coghill and Eshamy

Lakes which are dealt with separately in this report. The low sockeye catch from the General Districts is apparently due to low production of the parent years.

Coho salmon are the next most abundant of the incidentally taken species with a recent high catch of 30,551 in 1970. The 1979 catch of 4,949 is shown in Table 10. Coho salmon are produced in numerous small stocks thoughout Prince William Sound. The most notable production areas being Stream No. 19 in Simpson Bay; Stream No. 65 at Hell's Hole; and Stream No. 137, Lowe River, at the head of Port Valdez.

King salmon contribute insignificant numbers in the General Districts purse seine catch with a recent high catch of 3,551 in 1971. Table 10 shows a 1979 catch of 767.

There are no known king salmon spawning areas in Prince William Sound, and purse seine catches generally consist of small immature kings.

Table 10 presents the king, sockeye, and coho salmon catch for all gear for all Prince William Sound districts from 1968 to 1979.

Escapement. - Only sockeye salmon spawning escapements are regularly recorded from streams (lakes) in the General Districts (Table 14). Peak counts are used as the estimated spawning escapement. Since 1960 sockeye escapements into Bainbridge Lake have ranged from 100 to 2,000; in Billy's Hole Lake from 0 to 3,600; in Jackpot Lake from 300 to 7,000; in Lake Shrode from 50 to 8,000; and in Robe Lake from 500 to 9,000 (see Data Report No. 10, 1978).

Table 9. Comparison of Prince William Sound pink, chum and sockeye salmon run forecasts showing the percent of error, 1962 - 1979.

	Pink			Chum			Sockeye		
Year	Mean Forecast 1/	Return 1/	Percent Error 2/	Mean Forecast 1/	Return 1/	Percent Error 2/	Mean Forecast 1/	Return 1/	Percent Error 2/
1962	8.9 3/	8.7	+ 2.25						
1963	5.0	6.6	-32.00						
1964	6.1	6.0	+ 1.64	1.00	0.92	+ 8.00			
1965	4.2	3.4	+19.05	0.73	0.39	+46.58			
1966	6.3	4.0	+36.51	0.58	0.65	-12.07			
1967	3.3	3.8	-15.15	0.44 4/	0.45	- 2.27			
1968	3.1	3.5	-12.90	0.68	0.55	+19.12			
1969	5.8	5.9	- 1.72	0.44	0.48	- 9.09	0.19	0.18	+ 5.26
1970	4.4	3.8	+13.64	0.34	0.33	+ 2.94	0.09	0.04	+55.55 *
1971	6.2	9.5	-34.57	0.76	0.74	+ 2.63.			
1972	1.7	0.9	+47.06	0.80	0.47	+41.25			
1973	2.7	3.3	-17.85	0.64	1.28	-100.00			
1974	2.0	1.3	+35.00	0.29	0.28	+ 3.45			
1975	4.3	6.1	-41.86	0.22	0.15	+31.81			
1976	6.7	3.9	+41.79	1.80	0.46	+74.44			
1977	6.3	6.2	+ 1.59	0.75	0.71	+ 5.63			
1978	4.2	3.9	+ 7.14	0.64	0.65	- 1.56			
1979	8.4	18.4	-190.48	0.36	0.42	-16.30			

1/ In millions of fish.

2/ $\frac{\text{(Mean Forecast minus Actual Estimated Return)}}{\text{Mean Forecast}}$

3/ Weighted fry densities to include upstream production indicated 5.8 million, or an error of -13.2 percent.

4/ Using expanded estimate of 4 year return to total.

* Estimated.

Table 10. General districts purse seine salmon catch by week, by species, 1979.*

Week	King	Sockeye	Coho	Pink	Chum	Total
26	148	2,173	149	1,216,648	55,210	1,274,328
27	300	11,339	507	829,274	28,486	869,906
28	129	16,853	1,113	1,884,077	47,407	1,949,579
29	103	7,562	735	2,684,869	41,377	2,734,646
30	38	7,832	526	3,390,569	43,992	3,442,957
31	29	6,015	540	3,468,871	25,351	3,500,806
32	20	5,599	799	1,369,976	17,587	1,393,981
33		2,128	305	209,118	1,664	213,215
34		9	275	31,943	107	32,334
TOTAL	767	59,510	4,949	15,085,345	261,181	15,411,752

* Preliminary.

Table II. Annual commercial salmon catch from all Prince William Sound districts, by all gear, by species, 1968 - 1979.

Year	King	Sockeye	Coho	Pink	Chum	Total
1968	1,523	121,804	11,693	2,452,168	342,939	2,930,127
1969	3,340	285,584	12,866	4,828,579	320,977	5,451,346
1970	1,031	104,169	11,485	2,809,996	230,661	3,157,342
1971	3,551	88,368	30,551	7,310,964	574,265	8,007,699
1972[1/]	547	197,526	1,634	54,783	45,370	299,860
1973	2,405	124,802	1,399	2,056,878	729,839	2,915,323
1974[1/]	1,590	129,366	801	448,773	88,544	669,074
1975	2,519	189,613	6,142	4,452,805	100,479	4,751,558
1976	1,044	112,809	6,171	3,018,991	370,478	3,509,493
1977	648	310,358	843	4,513,082	572,610	5,397,541
1978*	1,043	220,329	1,464	2,785,156	483,559	3,491,551
1979*	2,016	147,466	6,303	15,385,724	324,040	15,866,049

1/ General purse seine season closed.

* Preliminary data.

Table 12. Prince William Sound escapement estimates, 1979.

Pink Salmon

District	Desired Escapement	Estimated Escapement
Eastern	403,750 - 484,500	782,420
Northern	140,000 - 168,000	223,580
Northwestern & Coghill	262,500 - 315,000	241,120
Southwestern & Eshamy	112,500 - 135,000	264,710
Montague	106,250 - 127,500	323,490
Southeastern	225,000 - 270,000	1,091,970
TOTAL	1,250,000 - 1,500,000	2,927,290

Chum Salmon

District	Desired Escapement	Estimated Escapement
Eastern	87,200 - 109,000	57,450
Northern	29,400 - 36,750	17,040
Northwestern & Coghill	48,600 - 60,750	18,660
Southwestern & Eshamy	3,400 - 4,250	80
Montague	11,400 - 14,250	0
Southeastern	20,000 - 25,000	4,450
TOTAL	200,000 - 250,000	97,680

Table 13. Chum salmon commercial catch age composition, by sex and date, Prince William Sound, 1979. 1/

SEX AND DATE	AGE CLASS 3	4	5	6	TOTAL
- July 14					
MALES					
Number	3,027	66,573	12,605	505	82,710
Percent	3.66	80.49	15.24	0.61	48.09
FEMALES					
Number	2,018	67,595	19,668	0	89,281
Percent	2.26	75.71	22.03	0.00	51.91
SEXES COMBINED					
Number	5,045	134,168	32,273	505	171,991
Percent	2.93	78.01	18.76	0.30	100.00
July 15 - August 4					
MALES					
Number	7,932	35,878	7,932	0	51,742
Percent	15.33	69.34	15.33	0.00	39.14
FEMALES					
Number	8,689	58,547	13,219	0	80,455
Percent	10.80	72.77	16.43	0.00	60.86
SEXES COMBINED					
Number	16,621	94,425	21,151	0	132,197
Percent	12.57	71.43	16.00	0.00	100.00
August 5 -					
MALES					
Number	1,679	5,156	1,039	0	7,874
Percent	21.32	65.48	13.20	0.00	40.62

Table 13. cont. Chum salmon commercial catch age composition, by sex and date, Prince William Sound, 1979. 1/

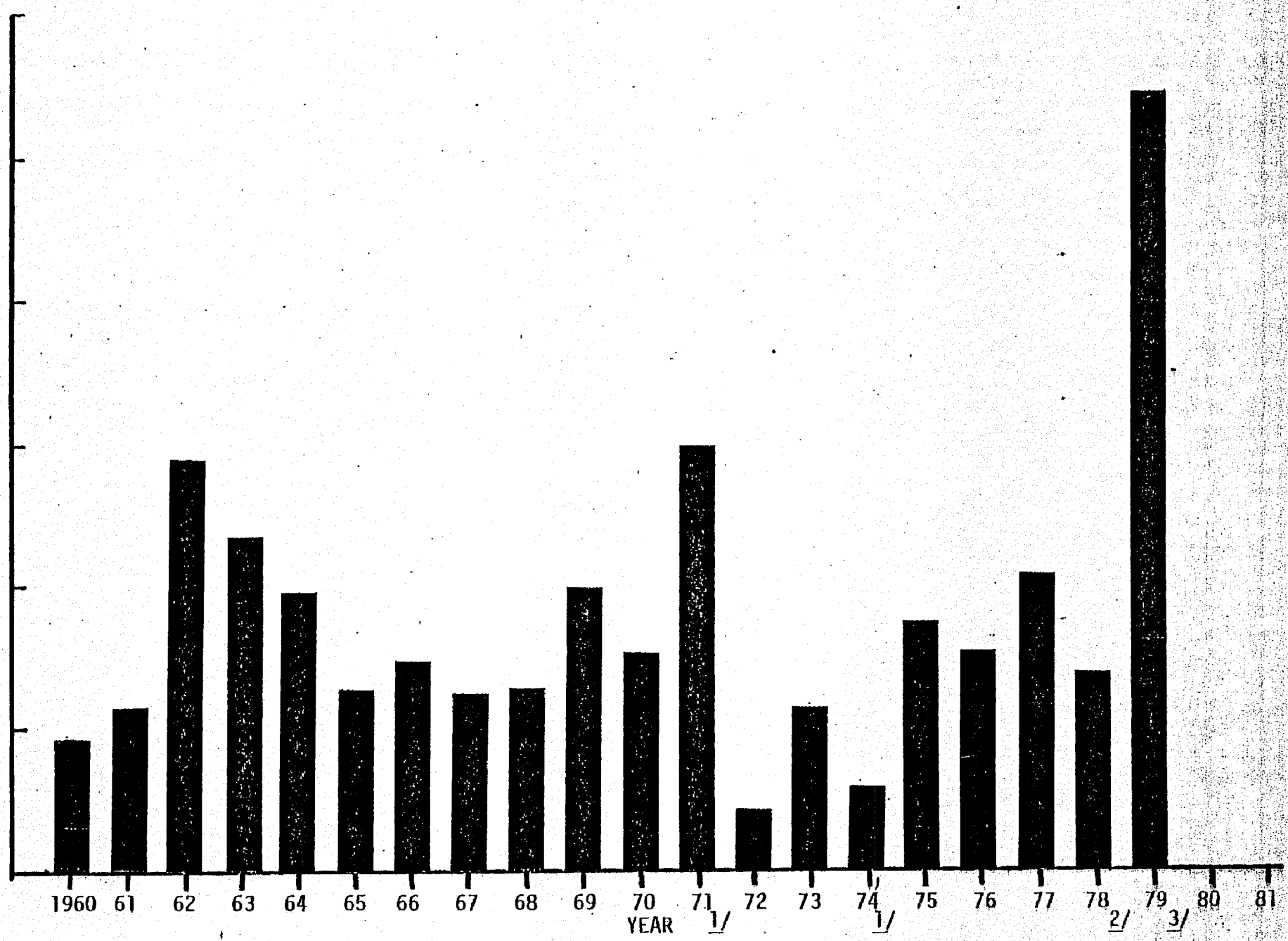
	AGE CLASS				
FEMALES	3	4	5	6	TOTAL
Number	1,359	7,993	2,038	120	11,510
Percent	11.81	69.44	17.71	1.04	49.38
SEXES COMBINED					
Number	3,038	13,149	3,077	120	19,384
Percent	15.67	67.84	15.87	0.62	100.00
TOTAL MALES					
Number	12,638	107,607	21,576	505	142,326
Percent	8.88	75.61	15.16	0.35	43.99
TOTAL FEMALES					
Number	12,066	134,135	34,925	120	181,246
Percent	6.66	74.01	19.27	0.06	56.01
TOTAL SEXES COMBINED					
Number	24,704	241,742	56,501	625	323,572
Percent	7.64	74.71	17.46	0.19	100.00

1/ Preliminary commercial catch data.

Table 14. Sockeye salmon estimated spawning escapement from selected systems in Prince William Sound, 1979.

Lake	Stream No.	7/5	7/23	8/1	8/22	8/24	9/5	Total 1/
Bainbridge	630	0		600		350	30	600
Billy's Hole	218		100		90			100
Jackpot	608			100		650	600	650
Shrode	476	No survey						
Robe	137	1500						1500
TOTAL								2850

1/ Peak count used.



1/ Seine season closed. 2/ Preliminary.

Figure 6, Prince William Sound Area annual salmon harvest, 1960 - 1979.

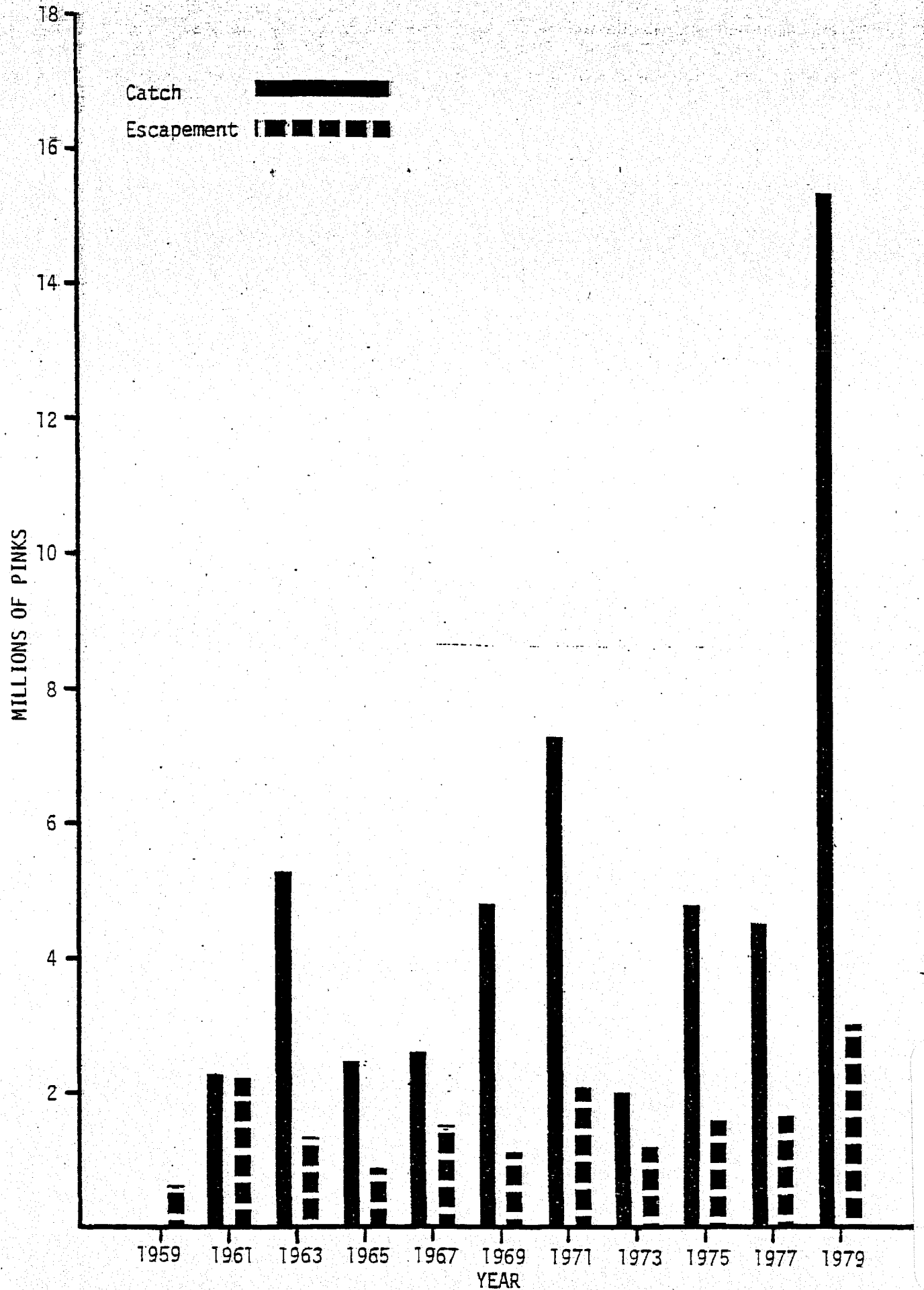


Figure 7. Prince William Sound pink salmon odd year catch and escapement.

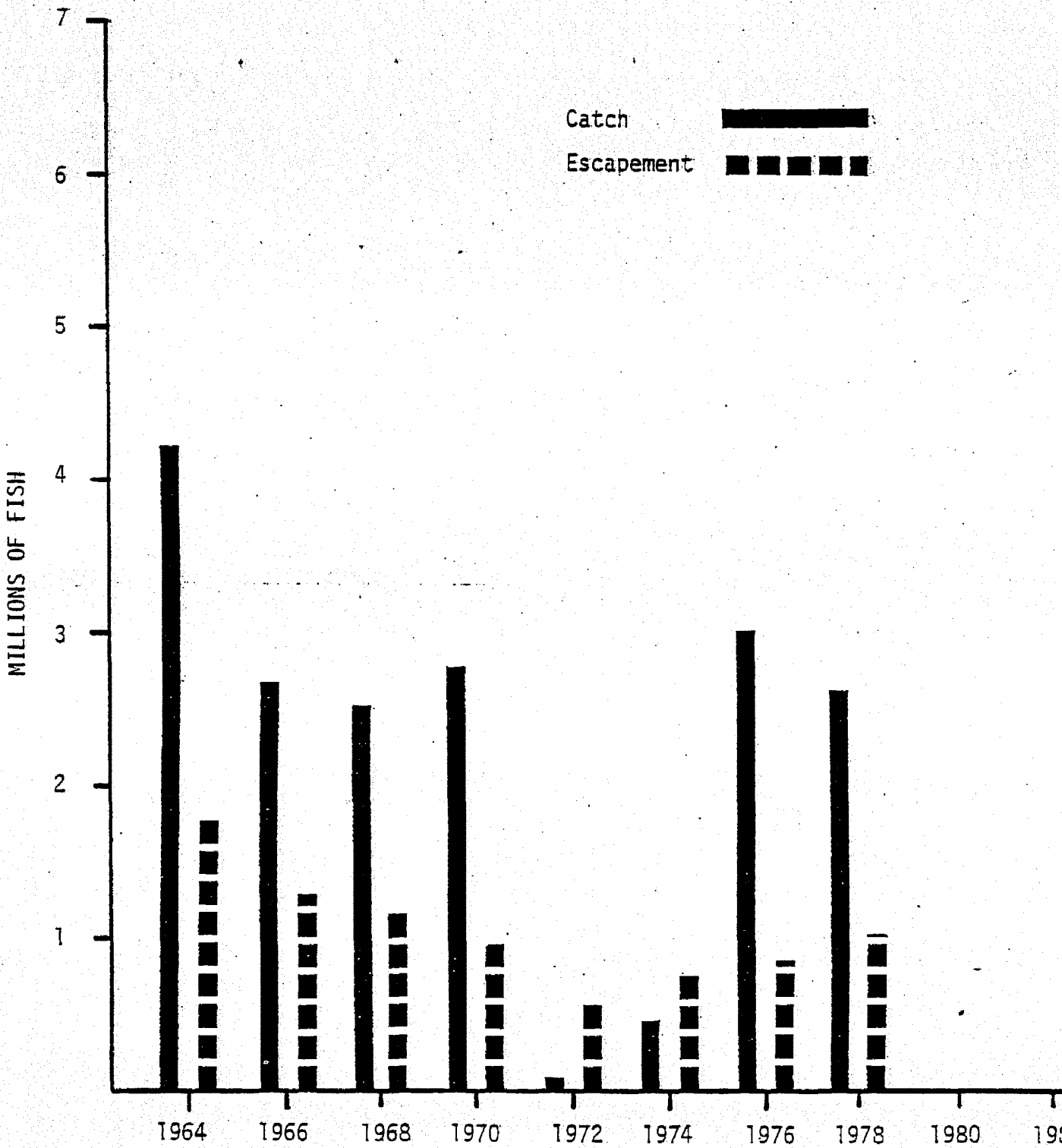


Figure 8. Prince William Sound pink salmon even year catch and escapement.

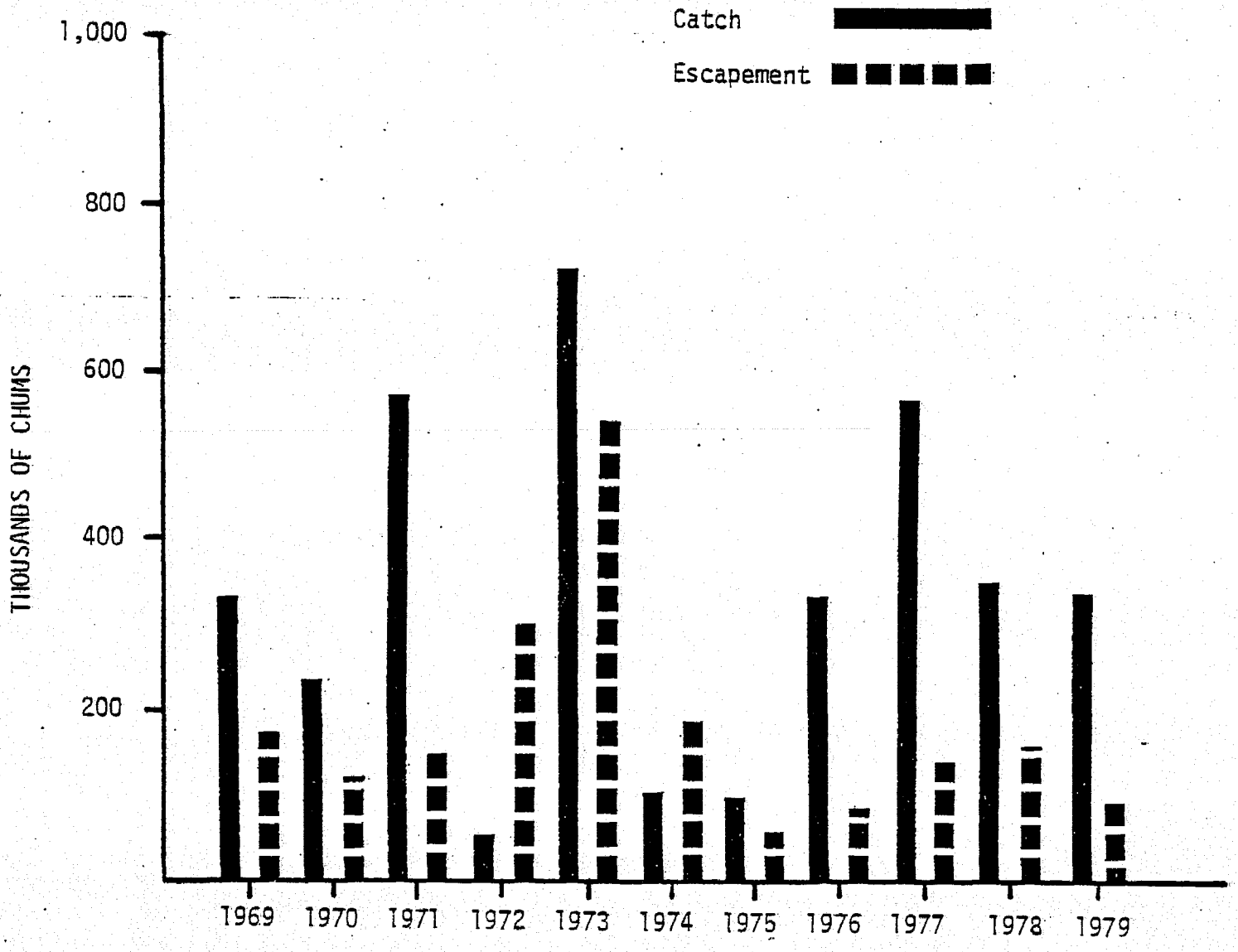


Figure 9.. Prince William Sound chum salmon catch and escapement.

* Preliminary.

COGHILL AND UNAKWIK DISTRICTS

Introduction. - The Coghill district is located in the northwest corner of Prince William Sound. The district is described in the Commercial Fishing Regulations as including water within one nautical mile of Esther Island on the south shore beginning at a point on the mainland shore at 60° 49' 22" N. lat., 147° 51' W. long., all water of Esther Passage, all water of College Fjord and all water of Port Wells north of 60° 48' 30" N. lat., a boundary point to point line from Esther Rock to Pigot Point (Figure 1).

Unakwik district is located in northcentral Prince William Sound and is described in the Commercial Fishing Regulations as the waters of Unakwik Inlet north of 61° 01" N. lat.

The legal gear for both districts includes both purse seines and drift gill nets although drift gill nets far outnumber the purse seine gear, and in most years only gill net fishermen operate in the Unakwik district. The districts are managed separately from other Prince William Sound districts primarily to harvest sockeye salmon returning to Coghill River in the Coghill district and to Cowpen and Miners Lake in the Unakwik district. Substantial numbers of both pink and chum salmon are also taken in the Coghill district, and during recent pink salmon odd-year cycles a concerted effort has been made to manage separately the very large pink salmon runs returning to Coghill River. Very few pink and chum salmon are caught in the Unakwik district; the catch being primarily sockeye taken by drift gill nets. The catch from the Unakwik district seldom exceeds 10,000 sockeye.

SOCKEYE SALMON

Catch. - Historical catches of sockeye from the Coghill district date back to 1961 when the district was first established to manage separately the run of sockeye returning to Coghill Lake. Unakwik district was established in 1962 to manage separately the sockeye runs returning to Cowpen and Miners Lakes. Sockeye catches from the Coghill district have ranged from the 1978 high catch of 201,928 to a low catch of 36,273 in 1970 (Table 16 and Figure 10). The high catch of sockeye was taken in 1978 despite the fact that the weekly fishing time prior to July 1 had been reduced to four days in the Coghill district where prior to 1977 fishing was allowed five days per week; also, a complete fishing closure was in effect in 1978 from 6/29 to 7/10. Table 15 presents the catch by species by week for both districts for 1979.

Unakwik district sockeye catches have ranged from 1,508 in 1971 to 11,922 in 1975 during the past ten year period, Table 17.

Escapement. - The escapement of sockeye into the Coghill district is monitored by counting at the Coghill River weir located approximately 1.5 miles upriver from the mouth. A permanent weir was installed in Coghill River in 1974 from which total sockeye escapement into Coghill Lake can be determined. Prior to 1974 sockeye escapement was estimated using a combination weir-tower estimate and aerial surveys. Estimated sockeye escapements have ranged from 9,658 in 1970 to 80,000 in 1966. Since installation of the permanent weir in 1974 the total sockeye escapement has ranged from 9,056 in 1976 to 48,281 in 1979 (Table 18 and Figure 10). The sockeye escapement into Coghill Lake in 1979 represents about 38.2 percent of the estimated total run (catch and escapement).

Table 19 presents the 1979 sockeye age composition for catch and escapement from the Coghill district. The predominant age in 1979 was 1.3's which is similar to past years.

Coghill River daily sockeye salmon weir count; air and water temperatures; and cloud cover is presented in Appendix B.

Periodic aerial surveys of spawning sockeye have been made in Miners Lake and Cowpen Lake (see Data Report No. 10).

PINK SALMON

Catch. - The Coghill district has several pink salmon producing streams with Coghill River being the major producer particularly during the odd-year cycle. The 1979 catch of 298,020, Table 16, is the second highest in the history of the fishery. The high catch of pinks is somewhat misleading however, and reflects primarily the increased fishing pressure and not the overall strength of the run. Direct comparisons of the district catch for all years are not representative as the Coghill district was enlarged in 1976 to include the western one-half of Port Wells.

Due to the closure of the Copper River drift gill net fishery, the Coghill and Unakwik districts opening date was advanced four days to coincide with the Bering River district opening. This regulation change was devised to disperse the fishing effort between the three districts. On June 14, the opening date, there were 179 drift gill nets operating in the Coghill and Unakwik districts. Peak effort occurred the second week of the fishery with 255 units of drift gill net operating in the districts.

The fishery operated for four days per week until July 1 when the regulation five days per week were allowed. The fishery continued uninterrupted throughout the length of the Prince William Sound general season and was closed by emergency order on August 28. Two in-season adjustments were made by emergency order during the season. The first relaxed the closure of College Fjord and allowed fishing up to the mouth of Coghill River in expectations of the usual large odd-year run of pinks to the river. Pinks did not return to Coghill River as expected, and in order to obtain a spawning escapement, it was necessary to close the small bay at the mouth of the river on July 23.

Escapement. - The Coghill district contains 13 pink salmon spawning streams that are regularly surveyed by air, and seven of these by foot surveys. These 13 pink streams comprise most of the known pink spawning streams of the district (Technical Data Report No. 35) and are used to calculate the annual escapement.

Table 18 shows the 1979 district escapement of 66,230 pink salmon and both odd and even year pink escapements since 1968. Coghill River is the major pink producer of the district, and in recent odd-year cycles has produced tremendously large returns that have significantly influenced both catch and escapement for all of Prince William Sound. The Coghill River return in 1979 was a disappointment, however, and resulted in the lowest odd-year escapement since 1965. In 1979 Coghill River represented about 58 percent of the district pink salmon escapement.

CHUM SALMON

Catch. - The Coghill district is a significant producer of chum salmon although the fishery probably intercepts stocks of chums enroute to the Northern and Eastern districts, and to a lesser degree, those headed for the Northwestern

district. Coghill River again is the major chum salmon stream in the district and contributes about 90 percent of the chums. Since 1968 the district chum catch has ranged from 13,966 in 1970 to a high of 164,578 in 1977, Table 16. The 1979 catch of 62,570 is slightly below average for the last 12-year period.

Escapement. - The Coghill district has seven chum salmon spawning streams that are regularly monitored for escapement. The surveyed streams are the only known spawning areas in the district and are used to calculate the annual district chum salmon escapement.

During the ten year period beginning in 1968 the Coghill district chum salmon escapement has ranged from 7,100 in 1975 to a high of 78,810 in 1973. The 1979 chum escapement was calculated to be 13,150, Table 18.

OTHER SALMON

Catch. - Small numbers of both king and coho salmon are taken each year in the Coghill district. Feeder populations of king salmon are taken incidental to the target species. Table 15 shows a high king catch of 1,238 since 1968. The 1979 catch is the highest catch for the period shown.

Some coho stocks are indigenous to the Coghill district as indicated by casual observations, but none are known to occur in the Unakwik district.

Table 16 shows the Coghill district catch of coho from 1968 to 1979. Coho catches have ranged from 67 in 1978 to a high catch of 1,845 in 1979.

Escapement. - Coho are known to spawn in Coghill River system and have been reported in the streams at the head of Pigot Bay. No other spawning areas are known although small numbers probably spawn in other streams in the districts.

No king salmon spawning areas are known in Prince William Sound.

Table 15. Coghill and Unakwik districts drift gill net and purse seine weekly salmon catch, 1979.*

Coghill Drift Gill Net

Week	King	Sockeye	Coho	Pink	Chum	Total
24	10	2,322		243	3,061	5,636
25	87	14,116	23	2,752	10,100	27,078
26	32	19,794	7	10,371	4,047	34,251
27	134	22,258	536	26,834	8,105	57,867
28	148	9,457	649	77,654	10,019	97,927
29	109	4,960	298	94,174	13,557	113,098
30	9	1,167	142	33,512	5,844	40,674
31	17	1,215	39	12,081	1,848	15,200
32		368	36	1,841	276	2,521
33			60			60
Sub-total	546	75,657	1,790	259,462	56,857	394,312

Coghill Purse Seine

24		9		7	50	66
25	631	956	9	1,055	969	3,620
26	43	1,097	2	9,835	2,416	13,393
27	18	860	29	7,784	910	9,601
28		80		11,036	1,143	12,259
29		46		3,942	85	4,073
30				1,088	139	1,227
31		1	15	3,811	1	3,828
32						
Sub-total	692	3,049	55	38,558	5,713	48,067
TOTAL	1,238	78,706	1,845	298,020	62,570	442,379

Unakwik Drift Gill Net

24						0
25	7	3,733		37	87	3,864
26	2	3,285		258	40	3,585
27		1,978		936	47	2,961
28	2	227	9	721	80	1,039
29		26		361	33	420
30						0
31		1		46	2	49
TOTAL	11	9,250	9	2,359	289	11,918

* Preliminary.

Table 16. Coghill district annual salmon catch by species and gear, 1968 to 1979. 1/

Year	King	Sockeye	Coho	Pink	Chum	Peak Units of Gear
Purse Seine						
1968	109	35,255	1,000	95,068	29,213	66
1969	523	63,269	120	22,112	23,687	73
1970	100	15,547	336	66,902	8,842	40
1971	348	15,652	393	64,877	41,680	68
1972	NO FISHING					
1973	40	2,856	18	68,918	16,403	73
1974	192	4,273	22	54,268	7,720	45
1975	246	4,985	30	145,155	2,561	45
1976	83	6,159	29	56,967	30,328	111
1977	40	16,436	50	230,215	37,102	47
1978*	206	9,124	34	13,427	14,003	25
1979*	592	3,049	55	38,558	5,713	
Drift Gill Net						
1968	64	40,853	219	19,108	16,863	128
1969	61	71,627	121	1,324	8,446	91
1970	4	20,726	102	6,694	5,124	80
1971	73	29,862	54	4,006	11,149	133
1972	67	134,628	296	5,961	18,503	142
1973	144	74,426	237	61,328	68,311	160
1974	156	95,610	103	98,149	51,428	212
1975	525	142,864	357	99,492	32,438	311
1976	102	54,334	72	53,219	89,170	229
1977	124	154,342	49	332,859	127,476	207
1978*	470	192,804	33	50,773	110,971	405
1979*	546	75,657	1,790	259,462	56,857	
All Gear						
1968	173	76,108	1,219	114,176	46,076	194
1969	584	134,896	241	23,436	32,135	164
1970	104	36,273	438	73,596	13,966	120
1971	421	45,514	447	68,883	52,829	201
1972	67	134,628	296	5,961	18,503	142
1973	184	77,282	255	130,246	84,714	233
1974	348	99,883	125	152,417	59,148	257
1975	771	147,849	387	244,647	34,999	356
1976	185	60,493	101	110,186	119,498	340
1977	164	170,778	99	563,074	164,578	254
1978*	676	201,928	67	64,200	124,974	430
1979* 2/	1,238	78,706	1,845	298,020	62,570	

1/ Catch through week 29.
2/ Catch through week 33.
* Preliminary data.

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Table 17. Unakwik district annual salmon catch by species, by gear, 1968 to 1979. 1/

Year	King	Sockeye	Coho	Pink	Chum	Peak Units of Gear
Drift Gill Net						
1968	1	6,537	3	349	62	17
1969	-	8,351	-	9	16	9
1970	-	7,018	-	1,892	672	16
1971	-	1,470	-	111	216	6
1972	2	10,010	-	3,445	859	13
1973	1	8,858	-	119	91	12
1974	5	10,449	3	10,911	500	16
1975	4	11,922	-	84	70	14
1976	4	8,421	-	2,744	331	15
1977	3	7,912	2	257	141	16
1978	24	9,116	-	2,084	598	22
1979	11	9,250	9	2,359	289	
Purse Seine						
1968	-	16	1	2,526	3,837	3
1969	-	-	-	8,297	743	2
1970	-	232	-	24,743	1,294	7
1971	-	38	68	14,207	1,621	6
1972	No Fishing					
1973	" "					
1974	" "					
1975	" "					
1976	-	7	-	8,526	225	4
1977	No Fishing					
1978	3	268	5	55,110	5,025	
1979	No Fishing					
All Gear						
1968	1	6,553	4	2,875	3,899	21
1969	-	8,351	-	8,306	759	11
1970	-	7,250	-	26,635	1,966	23
1971	-	1,508	68	14,318	1,837	12
1972	2	10,010	-	3,445	859	13
1973	1	8,858	-	119	91	12
1974	5	10,449	3	10,911	500	16
1975	4	11,922	-	84	70	14
1976	4	8,428	-	11,270	556	19
1977	3	7,912	2	257	141	16
1978	27	9,384	5	57,194	5,623	
1979* 2/	11	9,250	9	2,359	289	

1/ Catch through week 29.
2/ Catch through week 31.
* Preliminary data.

ACE10323553

Table 18. Coghill district annual salmon escapement by species, 1968 to 1979.

Year	Sockeye	Pink 4/	Chum 4/
1968	11,800 1/	104,340	22,950
1969	10,142	114,520	37,700
1970	9,658	80,060	17,330
1971	15,000 2/	526,950	15,450
1972	16,392	24,050	25,890
1973	13,281	561,200	78,810
1974	22,333 3/	42,660	39,700
1975	34,855	570,950	7,100
1976	9,056	50,930	35,750
1977	31,562	387,310	41,640
1978	42,284	75,270	13,550
1979	48,281	66,230	13,150

1/ Weir-tower estimates from 1968 to 1973, exception 1971.
2/ Aerial count.
3/ Total weir count since 1974.
4/ From 1968 the district totals have been adjusted to include the west side of Port Wells.

Table 19. Coghill and Unakwik districts sockeye salmon catch[1/] and Coghill River sockeye salmon escapement sex and age composition, Prince William Sound, 1

	Age Class						
	1.1	1.2	1.3	2.1	2.2	2.3	TOTAL
Catch							
MALES							
Number	94	8,782	20,613	83	4,209	594	33,925
Percent	0.28	25.89	59.43	0.24	12.41	1.75	43.62
FEMALES							
Number	0	11,324	26,175	0	5,211	1,139	43,849
Percent	0.00	25.82	59.70	0.00	11.88	2.60	56.38
SEXES COMBINED							
Number	94	20,106	46,338	83	9,420	1,733	77,774
Percent	0.12	25.85	59.58	0.11	12.11	2.23	100.00
Escapement							
MALES							
Number	0	12,897	20,834	0	660	0	34,391
Percent	0.00	37.50	60.58	0.00	1.92	0.00	71.23
FEMALES							
Number	0	4,960	8,930	0	0	0	13,890
Percent	0.00	35.71	64.29	0.00	0.00	0.00	28.77
SEXES COMBINED							
Number	0	17,857	29,764	0	660	0	48,281
Percent	0.00	36.99	61.65	0.00	1.36	0.00	100.00
Total Return							
MALES							
Number	94	21,679	40,997	83	4,869	594	68,316
Percent	0.14	31.73	60.01	0.12	7.13	0.87	54.20
FEMALES							
Number	0	16,284	35,105	0	5,211	1,139	57,739
Percent	0.00	28.20	60,80	0.00	9.03	1.97	45,80
SEXES COMBINED							
Number	94	37,963	76,102	83	10,080	1,733	126,055
Percent	0.08	30.12	60.37	0.07	7.99	1.37	100.00

1/ Preliminary data.

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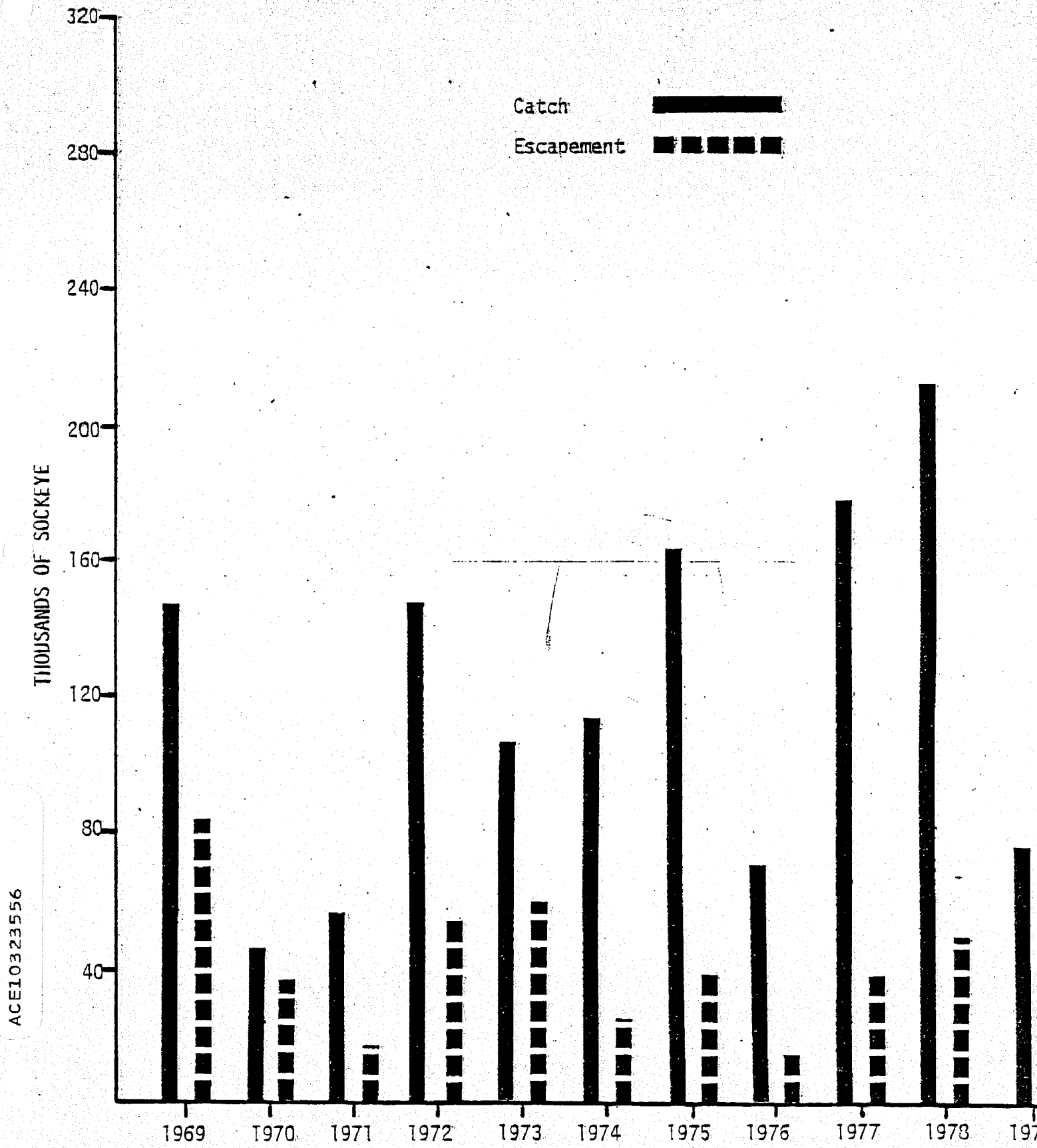

Figure 10. Coghill district sockeye salmon catch and escapement.
* Preliminary.

ESHAMY DISTRICT

Introduction. - Eshamy district is located on the western mainland shore of Prince William Sound. The district includes the water within one nautical mile of the mainland shore from the outer point on the north shore of Granite Bay to the light on the south shore of the entrance to Port Nellie Juan (Figure 1).

The legal gear for the district is set gill net and drift gill net, and the fishery is managed primarily to harvest sockeye salmon returning to Eshamy Lake; however, substantial numbers of both pink and chum salmon are taken, and in many years their numbers far exceed the total catch of sockeye from the district. Historical catches of sockeye from the district have approached or exceeded 100,000 several times, although the average is considerably less, and since 1940 the catch has averaged about 36,000 sockeye.

Since statehood the management strategy has been to regulate the fishery on the basis of the counted sockeye escapement at Eshamy River weir by opening the fishery during years when parent escapements were considered adequate, and closing the district when parent escapements were low. This method of regulating the fishery has not always been successful as experienced by the 1974 fishery where a catch of 19,034 and an escapement of 633 sockeye were recorded. The reason for the unusually low ratio of escapement to catch is not known, and no suspected reasons are readily apparent.

SOCKEYE SALMON

Catch. - The Eshamy district was closed to fishing in 1979. The Eshamy district annual catch by species and gear from 1968 to 1979 is presented in Table 20.

Escapement. - The Eshamy district is managed separately from other Prince William Sound districts primarily to harvest sockeye salmon returning to the Eshamy Lake system. For many years the principal management tool has been a weir placed in Eshamy River to count sockeye returning to the lake to spawn. The weir was first placed in the river in 1931, and was operated for two years, but because of budget limitations was abandoned after the 1932 season (ADF&G Technical Data Report No. 26). Counting was initiated again in 1950 and has been an annual management tool since that time.

Sockeye escapement counts at Eshamy River weir have ranged from a high of 229,668 in 1932 to a low count of 633 sockeye in 1974. The average sockeye escapement for the past twelve year period is 15,519 with a range of 61,196 to 633 (Table 21 and Figure 11). The Eshamy River count for the 1979 season is contained in Appendix C.

Age composition of the sockeye escapement is presented in Table 22 which shows the majority ages to be 1.2's with a significant number of 2.2's.

PINK SALMON

Catch. - The Eshamy district was closed to fishing in 1979. Eshamy district annual catch by species and gear from 1968 to 1979 is shown in Table 20.

Escapement. - Escapement foot surveys are conducted on several small streams in the district in addition to the weir count and surveys of Eshamy River (ADF&G Technical Data Report No. 35). In 1979 five streams were surveyed which produced a calculated spawning escapement of 12,860 pink salmon. This compares to the five year odd year average spawning escapement of 12,770 with a range of 5,390 in 1973 and 32,080 in 1977, Table 21.

Catch. - The Eshamy district was closed to fishing in 1979. Eshamy district annual catch by species and gear from 1968 to 1979 is presented in Table 20.

Escapement. - Very few chum salmon spawn in the Eshamy district as indicated in Table 20. The largest spawning escapement for the last ten years was calculated to be 440 in 1975, and no escapement of chums was recorded for five of the ten years. No chums were observed spawning in the district in 1979.

OTHER SALMON

Catch. - Incidental catches of both king and coho salmon are taken during years the fishery is operating. The highest recorded catch of 3,895 coho was taken in 1962, and the highest recorded catch of 82 kings was taken in 1972 (Technical Data Report No. 26). The district was closed to fishing in 1979.

Escapement. - Coho salmon are known to spawn in one stream in the district, namely, Eshamy River. The highest recorded escapement of 6,372 was counted at Eshamy River weir in 1932, and subsequent escapements have ranged down to a low of none being counted in 1974. No coho were counted in the river in 1979.

King salmon do not normally spawn in Prince William Sound streams although occasional strays have been recorded at Eshamy River weir (Technical Data Report No. 26).

Research. - No work was done on the proposed lake fertilization of Eshamy Lake due to the lack of funding in 1979.

Table 20. Eshamy district annual salmon catch by species and gear, 1968 to 1979.

Year	King	Sockeye	Coho	Pink	Chum	Peak Units of Gear
			Set Gill Net			
1968	CLOSED					
1969	13	56,785	182	22,133	7,120	23
1970	2	15,310	515	38,607	4,672	27
1971	CLOSED					
1972	33	37,771	520	25,103	10,345	11
1973	28	8,969	78	9,724	10,914	15
1974	4	6,394	11	68,300	5,408	10
1975	CLOSED					
1976	CLOSED					
1977	9	9,889	2	24,743	4,218	12
1978	CLOSED					
1979	CLOSED					
			Drift Gill Net			
1968	CLOSED					
1969	3	4,984	29	3,327	1,016	10
1970	-	1,982	64	5,774	960	8
1971	CLOSED					
1972	49	15,117	626	20,362	15,663	53
1973	41	7,470	71	11,777	16,632	42
1974	18	12,640	114	217,141	23,488	146
1975	CLOSED					
1976	CLOSED					
1977	22	16,916	49	63,036	8,344	53
1978	CLOSED					
1979	CLOSED					
			All Gear			
1968	CLOSED					
1969	16	61,769	211	25,460	8,136	33
1970	2	17,292	579	44,381	5,632	35
1971	CLOSED					
1972	82	52,888	1,146	45,375	26,008	64
1973	69	16,439	149	21,501	27,546	57
1974	22	19,034	125	285,441	28,896	156
1975	CLOSED					
1976	CLOSED					
1977	31	26,805	51	87,779	12,562	65
1978	CLOSED					
1979	CLOSED					

Table 21. Eshamy district annual salmon escapement from weir and stream foot survey counts, 1968 to 1979. 1/

Year	King	Sockeye 2/	Coho	Pink	Chum
1968	1	68,048	450	12,030	
1969		61,196	96	12,280	
1970		11,460	25	7,420	390
1971		954	97	7,800	120
1972		28,683	71	1,510	70
1973		10,202	205	5,390	170
1974		633		6,330	
1975		1,724	41	5,720	440
1976		19,367	125	5,500	
1977		11,746	230	32,080	
1978		12,580	20	5,690	
1979		12,169		12,860	

1/ Number of streams surveyed varied from 3 to 5 for pink and chum salmon, (See Technical Data Report No. 35 and Data Report No. 9).

2/ Weir count.

Table 22. Eshamy River sockeye salmon escapement sex and age composition, Prince William Sound, 1979

SEX	Age Class 1.1	1.2	1.3	2.2	2.3	TOTAL
MALES						
Number	412	5,392	300	636	37	6,777
Percent	6.08	79.56	4.42	9.39	0.55	55.69
FEMALES						
Number	0	4,344	300	711	37	5,392
Percent	0.00	80.56	5.56	13.19	0.69	44.31
SEXES COMBINED						
Number	412	9,736	600	1,347	74	12,169
Percent	3.39	80.01	4.93	11.07	0.60	100.00

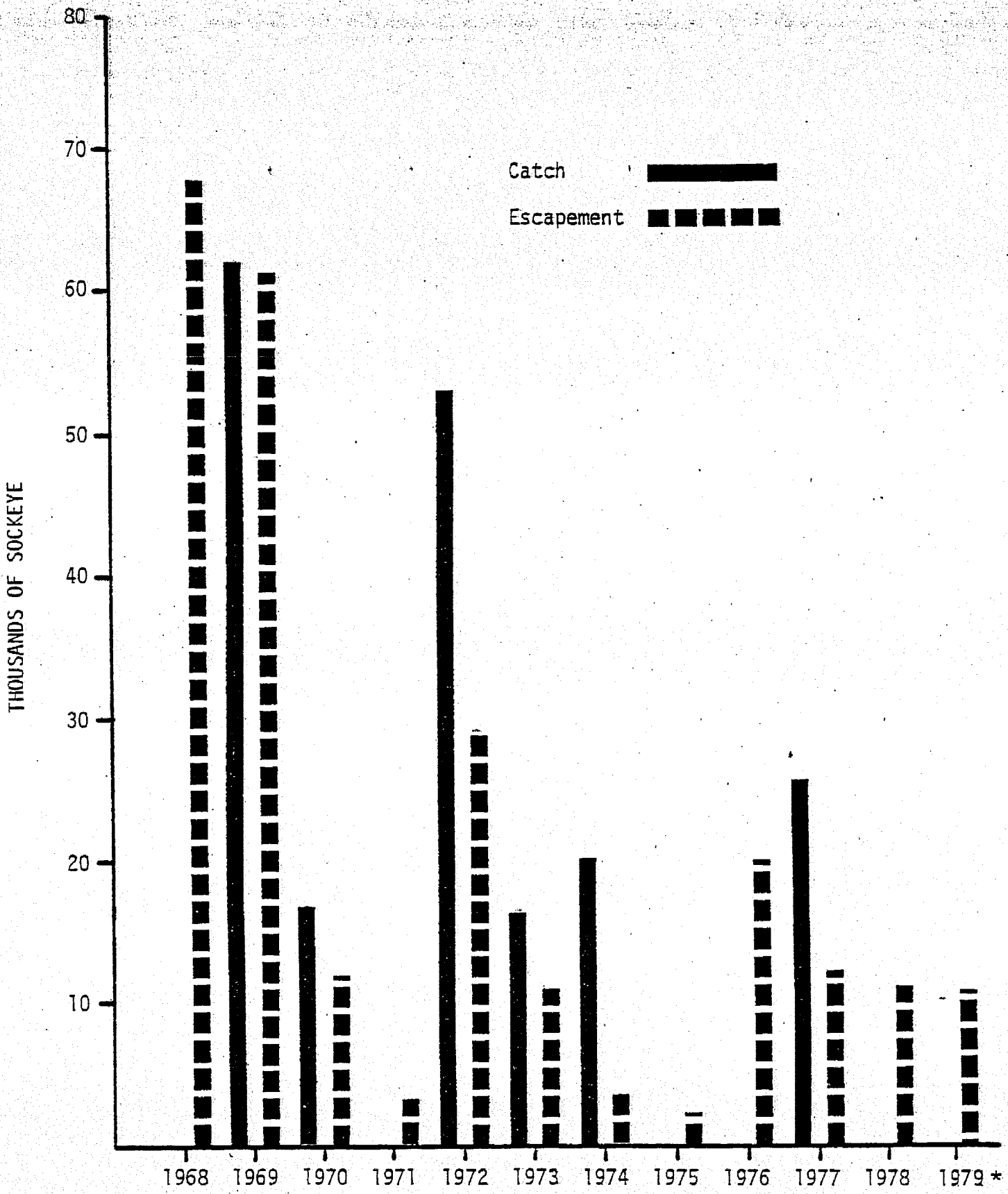

Figure 11. Eshamy district sockeye salmon catch and escapement.

HERRING FISHERY

Introduction. - The Prince William Sound Area supports three major herring fisheries: 1) a spring sac roe fishery; 2) a spring herring spawn on kelp fishery; 3) a fall and winter herring bait and food fish fishery. The total value to fishermen of these fisheries in 1979 approached 6.8 million dollars.

SAC ROE FISHERY

During the 1979 season the staff implemented a management plan, approved by the Board of Fisheries, which provided for a season opening on April 7, and a closure by emergency order when the guideline harvest level of 5,000 tons was attained. Management plans prior to 1979 required season openings by emergency order as determined by sac roe recovery.

The reasons favoring the management plan adopted in 1979 were: 1) roe recovery was normally 8 percent or higher as the herring became available to the fishing fleet in sac roe harvest areas, and was highly acceptable by processors; 2) the plan allowed the fishing fleet to search for incoming herring schools and lessened the chance of the herring migrating through the open fishing area undetected; and 3) it would allow for a more orderly harvest to occur by dispersing fishing effort throughout the harvest area.

Initially, the plan worked very well. The season opened on April 7, and the first catches were made on April 8. By April 14, 346 tons of herring, with roe recovery varying between 7 through 11 percent, had been harvested. On April 16 the fishing effort shifted to the east side of the Northern District open fishing area where incoming herring schools were located by aircraft. Roe recovery of sampled catches fell below percentages acceptable to processors resulting in most seine sets of herring being released. At that time the season was closed by emergency order.

Also on April 16, the staff expanded aerial surveys to cover areas adjacent to the Northern District sac roe harvest area. On that day 231 schools, an estimated 10,520 tons of herring, were observed in adjacent areas outside of the Northern District. Since minor spawning had been recorded in a small area of Port Gravina, it was apparent that if a harvest were to occur, the sac roe harvest area boundary of the Northern District would have to be extended eastward.

The staff on that day contacted headquarters officials in Anchorage and Juneau concerning the problem of harvesting herring outside of established sac roe harvest area. The Commercial Fisheries Entry Commission, the regulating agency responsible for the establishment of the harvest area, was in turn contacted, and on April 18 issued an emergency regulation extending the harvest area to include Port Gravina. In the meantime, volunteer fishermen had been contacted, and roe recovery samples collected which varied from 8 to 11 percent recovery.

At 12:00 noon on April 18, the staff issued an emergency order which opened the herring season for one hour in Port Gravina. This opening excluded areas where known spawning was occurring. Catch reports, obtained from tender vessel operators immediately after the closure, indicated that catches were far below anticipated levels, and the season was reopened later in the day for an additional two and one-half hour period. Again catches were minimal, and it became apparent that the herring that were once available had moved out of Port Gravina during the two days required to obtain the emergency regulation from the Commercial Fisheries Entry Commission.

After the closure aerial surveys were flown and a large harvestable surplus of herring was observed in Sheep and Simpson Bays. That evening an emergency announcement was made opening those bays for a one hour fishery at 6:00 a.m. on April 19. Catches for the one hour opening approached 3,000 tons bringing the season total to 4,138 tons. The season was not reopened.

Table 23 presents catch and effort data for the years 1967 - 1979 while Figure 12 shows designated sac roe harvest areas and new areas opened by emergency order in 1979.

BAIT AND FOODFISH FISHERY

All of Prince William Sound except existing sac roe harvest areas and the Valdez Arm closed water area is open for the harvest of herring taken in this fishery. Legal fishing gear consists of seines, trawls and gill nets although only trawls and seines are presently used.

The 1979 - 80 season was opened by emergency order on September 15 after a fairly large concentration of herring schools had been observed by the staff in the southwestern and western portions of the Sound. Since in the recent past very little fishing had occurred on herring in this area, it was the intention of the staff to shift some of the fishing effort away from normal winter bait harvest areas by opening the season early in that area.

On opening day a severe storm front moved into the Sound halting all fishing effort for the next ten days. Some seine sets were made in the more protected bays, but only small, juvenile herring were available and these were released. After the storm period the herring concentrations observed earlier could not be relocated.

The general herring bait harvest areas were opened on October 1. One seine boat and two trawl boats caught 463.5 tons from October through December.

The total 1979 bait/food catch of 850 tons was taken by seven boats, Table 23.

HERRING SPAWN ON KELP FISHERY

This fishery is regulated by a 200 ton guideline harvest level. The season is opened by emergency order approximately two to three days after spawning has reached peak intensity. Legal gear for harvesting is limited to hand cutting of the kelp fronds four inches above the stem.

Pre-season surveys revealed extremely excellent recruitment of harvestable plants throughout the harvest area. Spawning was widespread and extended from Valdez Arm, eastward into Knowles Bay, portions of Port Gravina and Sheep Bay. The first spawning occurred on April 17 and appeared to peak on the 20th and 21st. When the season was opened on April 25 the egg density on kelp fronds was very good.

The season closed by emergency order when reports from processors indicated that the total harvest was approaching the 200 ton guideline harvest level.

Figure 13 shows areas of spawning and kelping while Table 23 compares annual harvest data.

POUND CULTURE OF SPAWN ON KELP

During the 1978 Board of Fisheries meeting, the Board promulgated regulations for this fishery. Fishermen interested in this form of spawn on kelp harvest must obtain a permit from the Department which specifies pound location, areas where kelp can be harvested for introduction into pounds, and areas where herring can be seined for introduction into pounds. Since six to ten tons of herring must be introduced into the pounds to produce one ton of herring spawn on kelp, seining is allowed inside of the closed water boundary of Valdez Arm. A guideline harvest level of eight tons was adopted for this fishery.

In 1979 two individuals applied for pound permits. Neither permit was used due to lack of time to construct pounds. Natural spawning was extremely good which lessened the need for this type of production.

One permit holder did go as far as harvesting Macrocystic sp. kelp from Southeastern Alaska and shipping this kelp to Cordova. This kelp was later attached to lines in the open waters of the Tatitlek Narrows region of the Valdez Arm area, and some production did occur. Pertinent information relative to this experiment is unknown at this time.

HERRING RESEARCH

Herring research in Prince William Sound consists of ongoing programs regarding biological sampling of harvested populations to assist overall condition and recruitment of herring into the commercial fishery; beach and air surveys of spawning areas to determine relative magnitudes of spawning intensity and egg deposition pre and post season underwater surveys which are aimed at evaluation effects of post kelp harvest and growth and recruitment of the kelp in harvested areas; and a new project, undertaken by the University of Alaska Sea Grant Program, with the primary objectives of examining the herring stocks utilized in the bait and sac roe fisheries, to determine whether or not the stocks exploited are the same individual stocks or two entirely different stocks. If distinct stocks are exploited by these fisheries, the increase in bait herring catch should not impact the sac roe fishery. If, however, a single stock contributes substantially to both fisheries, management strategies can be developed to protect against overharvest.

Tables 24 and 25 present age, length, weight and sex analysis data for the bait and sac roe seasons while Figure 14 displays age analysis comparisons for the years 1973 - 1979.

Table 23. Herring and herring spawn on kelp in tons from Prince William Sound, 1967 - 1979.

ACE10323566

		HERRING						HERRING SPAWN ON KELP			
		Bait/Food Fishery			Sac Roe Fishery						
Year	Season	Number of Boats	Units of Gear	Tons	Units of Seines	Units of Gill Nets	Tons	Total Tons	Number of Permits	Number of Kelpers	Number of Boats	Tons
1967				30				30				
1969					6		355.7	355.7	3	3	3	2.7
1970		1	1	10				10	58		29	95.2
1971		2	2	20	12		919.2	939.2	487		34	384.7
1972		1	1	4.9	16		1,772.3	1,777.2	1,100		397	299.7
1973		1	1	8.5	28		6,983.3	6,991.8	504		176	153.2
1974					72	3	6,371	6,371	295	166	143	276.1
1975					76		6,080.5	6,080.5	765	437	328	458.5
1976	1/				66		2,584.1	2,548.1	662	357		242.5
1977	2/	2	2	17	60	1	2,284.1	2,301.1	251	164		208.5
1978		5	5	143.5	70		1,334.3		80	66		70.5
	1978-79	6 4/	4	1,284.5		40	61.5					
1979	3/	7	5	850	89		4,138		216	198		236.5
	1979-80	3/ 5 5/	5	761.7								

1/ No fishery in the Northern District. Fishermen on strike. 2/ No fishery in the Montague District. 3/ Preliminary. 4/ One seine boat, one mid-water trawler, two pair trawls (two boats to each pair trawl). 5/ One seine boat, two pair trawls, 2 mid-water trawls.

Table 24. 1978-79 herring bait fishery. Age, length, weight and sex composition of all samples combined.

Age Group	Year Class	Males: Frequency Number	Males: Frequency %	Males: Means Length mm	Males: Means Weight grams	Females: Frequency Number	Females: Frequency %	Females: Means Length mm	Females: Means Weight grams	Sexes Combined Frequency in Percent
II	1977	10	2.4	153.2	30.3	3	0.9	152.7	35.0	1.7
III	1976	167	40.7	172.8	60.7	149	43.6	176.5	66.0	42.0
IV	1975	105	25.6	176.9	64.8	85	24.9	181.5	70.4	25.3
V	1974	59	14.4	187.3	79.1	44	12.9	186.8	75.3	13.7
VI	1973	36	8.8	195.9	89.4	35	10.2	191.9	87.2	9.4
VII	1972	23	5.6	204.2	107.3	18	5.3	201.3	99.4	5.5
VIII	1971	9	2.2	199.6	96.3	4	1.2	207.0	99.0	1.7
IX	1970	0	0	0	0	4	1.2	211.2	109.0	0.5
X	1969	1	0.2	246.0	133.0	0	0	0	0	0.1
Total Number :		410				342				
Average Length:				180.0				182.5		
Average Weight:					70.6				73.9	

Sex Composition: 55% males; 45% females

Table 25. 1979 herring sac roe fishery. Age, length, weight and sex composition of all samples combined.

Age Group	Year Class	Males: Frequency Number	Males: Frequency %	Males: Means Length mm	Males: Means Weight grams	Females: Frequency Number	Females: Frequency %	Females: Means Length mm	Females: Means Weight grams	Sexes Combined Frequency in Percent
II	1977	0	0	0	0	1	0.2	129.0	28.0	0.1
III	1976	379	82.4	180.8	72.2	335	84.0	182.1	76.5	83.1
IV	1975	51	11.1	182.6	73.5	41	10.3	183.3	78.6	10.7
V	1974	16	3.5	203.4	102.6	16	4.0	200.6	98.6	3.7
VI	1973	6	1.3	207.8	114.0	3	0.8	186.3	94.0	1.0
VII	1972	5	1.1	220.8	147.7	1	0.2	205.0	(no weight taken)	0.7
VIII	1971	3	0.6	230.0	165.0	2	0.5	227.0	144.5	0.6
IX	1970	0	0	0	0	0	0	0	0	0
X	1969	0	0	0	0	0	0	0	0	0
Total Number :		460				399				
Average Length:				182.9				183.1		
Average Weight:					75.4				77.8	

Sex Composition: 54% males; 46% females.

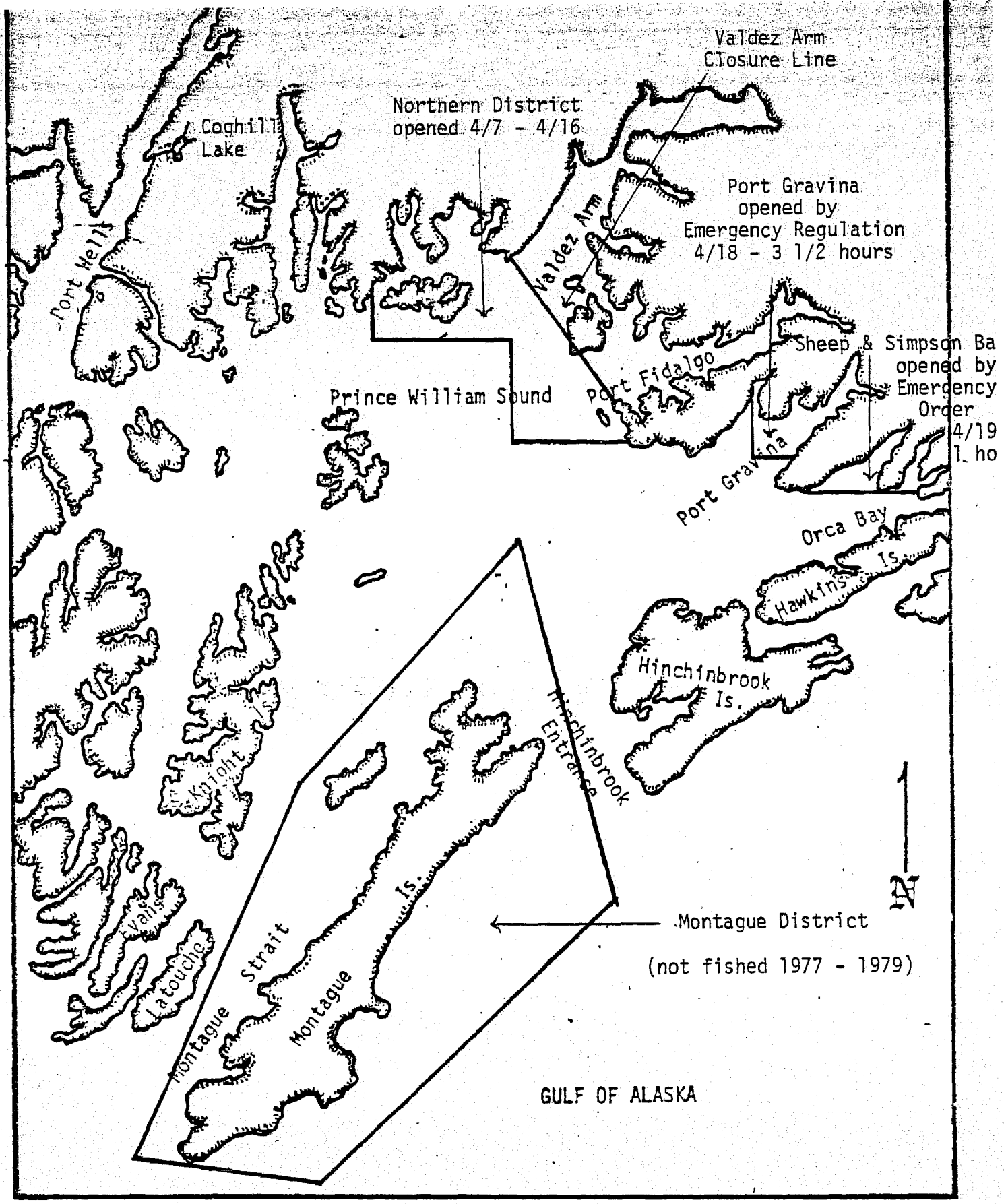

Figure 12. Prince William Sound sac roe harvest areas, 1979.

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Figure 13. Areas of herring spawning and kelping in 1979.

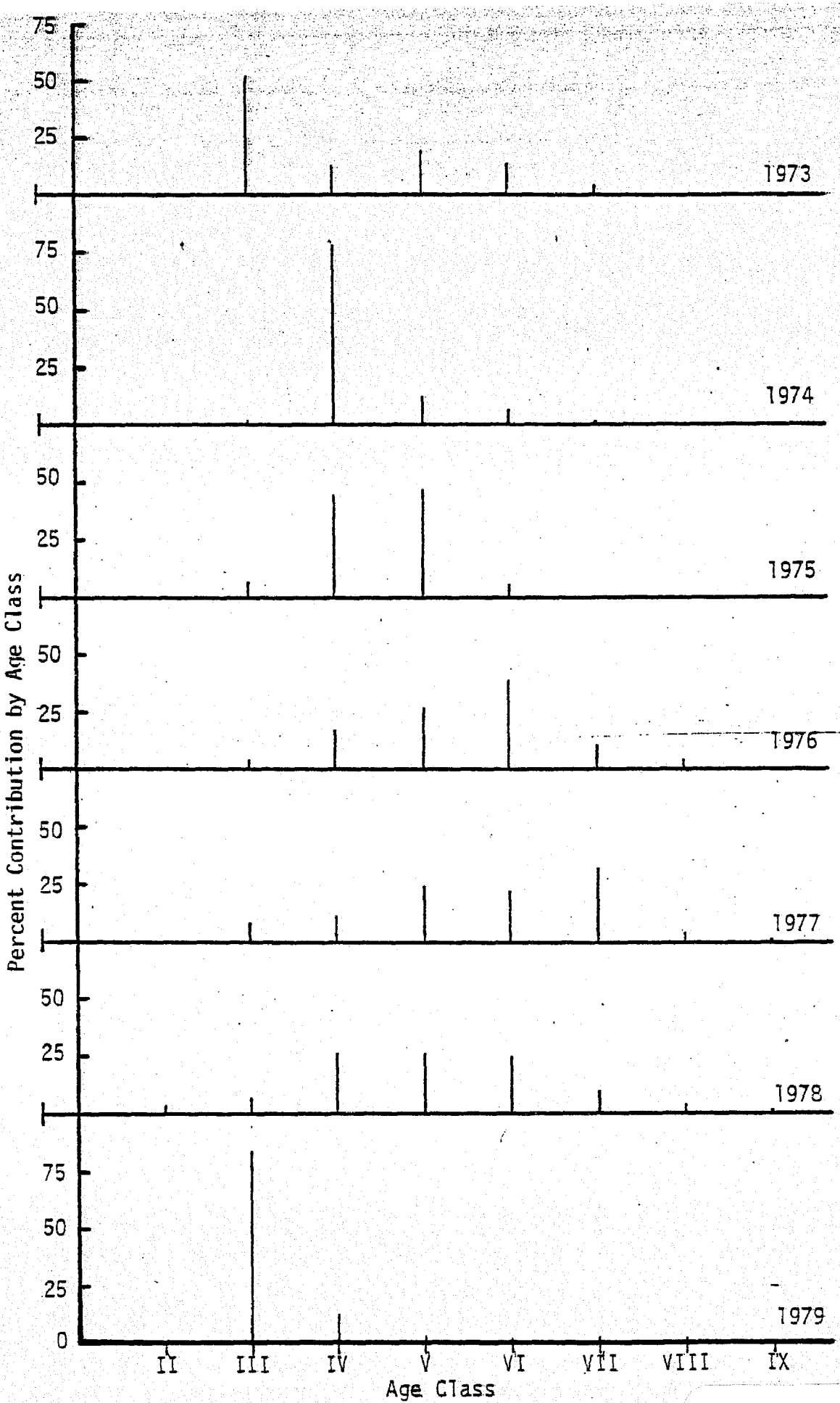

Figure 14. Prince William Sound herring sac roe fishery, percent contribution by age class, 1973 - 1979.

ACE10323571

Introduction - Each year miscellaneous data is gathered on the commercial fisheries of the Prince William Sound Area that is not related specifically to any particular fishery. Items of this nature are discussed briefly in this section.

Calendar Weeks - The 1979 calendar of weeks presented in Table 26 was used in reporting catch statistics. The calendar weeks are presented here as a reference for the several tables used in the report that list catches by week.

Economic Conditions - A fair to good economic condition exists at the present time as indicated by the continuing trend of upgrading the area's fishing fleet and the recent addition of several new fishing vessels. The fishing fleet is continuing to diversify by engaging in several fisheries instead of primarily salmon. Prices for all species continued to climb in 1979 and reflect the national inflationary trend which, in part, has caused the processors of salmon to shift more and more to frozen products which require less labor and demand higher prices.

The overall economic view for 1979 was a substantial increase to fishermen over 1978. Although the total Copper River sockeye salmon catch was the lowest in the history of the fishery, the total king salmon catch during the three and one-half day season was about average for a normal season, and the coho catch was the largest since 1968. Unlike the Copper River sockeye catch, the Bering River sockeye catch was the highest since 1923, and the coho catch set a new record high for the district. The fantastic pink salmon catch from Prince William Sound districts added to catches of other species from all districts of the management area resulted in a total catch of over 16 million fish.

The salmon price per pound settlement reached between fishermen and processors was: kings, $1.62, sockeye, $1.40, coho, $1.10, pinks, $ .3777 and chums, $ .53. As the season progressed and buying became more competitive the prices esculated.

The average prices paid for salmon, shellfish and miscellaneous fish is shown in Table 27.

Table 26. Calendar weeks used in reporting catch statistics from 1979 landings.

Week	From		Through	
1	Jan.	1	Jan.	6
2		7		13
3		14		20
4		21		27
5		28	Feb.	3
6	Feb.	4		10
7		11		17
8		18		24
9		25	March	3
10	March	4		10
11		11		17
12		18		24
13		25		31
14	April	1	April	7
15		8		14
16		15		21
17		22		28
18		29	May	5
19	May	6		12
20		13		19
21		20		26
22		27	June	2
23	June	3		9
24		10		16
25		17		23
26		24		30
27	July	1	July	7
28	July	8	July	14
29		15		21
30		22		28
31		29	Aug.	4
32	Aug.	5		11
33		12		18
34		19		25
35		26	Sept.	1
36	Sept.	2		8
37		9		15
38		16		22
39		23		29
40		30	Oct.	6
41	Oct.	7		13
42		14		20
43		21		27
44		28	Nov.	3
45	Nov.	4		10
46		11		17
47		18		24
48		25	Dec.	1
49	Dec.	2		8
50		9		15
51		16		22
52		23		29
53		30		31

Table 27. Average price paid per pound for salmon, shellfish and miscellaneous fish in the Prince William Sound Area, 1979.

Salmon

King	Sockeye	Coho[1/]	Pink[2/]	Chum
$1.62	$1.40	$ .39 - $1.10	$ .3777	$ .53

Shellfish

King Crab	Dungeness Crab	Tanner Crab	Razor Clams (bait)
$1.72	$ .65	$ .555	$1.00

Miscellaneous Fish[3/]

Herring Sac Roe	Herring Spawn on Kelp	Herring (bait)	Halibut	Bottom Fish (bait
$1,000 to $1,500/ton	$1.74	$ .15	$2.00	$ .35

1/ The settlement price reached for coho salmon caught in Prince William Sound was $ .39, and $1.10 for Copper River and Bering River.

2/ The pink salmon egg recovery adjustment paid to fishermen was $ .07275 per pound.

3/ Averaged from Annual Reports of Operators.

PROCESSORS

In 1979 five major processors and three smaller operations processed salmon in the Prince William Sound Area. Three of the major operators custom processed salmon for two other companies. Nine processors purchased salmon for processing in areas outside of the management area.

Three major and one minor companies processed 44 tons of king crab, 3,303 tons of Tanner crab and 326 tons of Dungeness crab.

Herring sac roe was processed by 14 companies, and six operators processed herring spawn on kelp.

Approximately 245 tons of bottom fish and 6 tons of razor clams were purchased mainly for crab bait.

Other species taken included 648 tons of halibut, 330 tons of shrimp and minor amounts of octopus and snails.

The average price per pound paid for salmon, shellfish and miscellaneous fish harvested in the Prince William Sound Area is recorded in Table 27.

Table 28 gives the 1978 salmon case pack and frozen production by species, by week, for the area while Table 29 shows the production from 1972 to 1979.

A sequential listing of finfish and shellfish processors, location of operation, size of cans, lines of machinery and type of product processed in 1979 is presented in Appendix A.

Table 28. Prince William Sound Area case pack and pounds of frozen salmon by species, by week, 1979. 1/

	King		Sockeye		Coho		Pink		Chum	
Week	Pounds Frozen	Cases	Pounds Frozen	Cases	Pounds Frozen	Cases	Pounds Frozen	Cases	Pounds Frozen	Cases
20		22								
21	115535	7	124660							
22	182183		102462		5				171	
23	CLOSED									
24	1057		63159	11	190		1118		20562	
25	2695	20	272430	255	1183	20	6303	167	47115	1207
26	124	45	217534	195	221	70	207663	34846	48269	2496
27	0	15	393101	1121	85	341	85515	35239	30705	4489
28	329	12	115190	956	3141	640	324942	77429	51085	5955
29	313	10	109860	393	5426	393	383978	75307	41441	2063
30	92	27	18656	279	113	299	333412	89889	38673	3952
31	31		13406	112	168	265	258122	80532	13790	1788
32			19322	138	12770	477	167283	53286	6324	1397
33	60		13758	157	105889	319		14060	4780	519
34				5	223470	383		2468	1954	3
35			2400	18	385707	365	674	805		476
36			200	29	541849	167		56	446	2
37					308668	164				
38			800		102543	67	181			
39					90747					
TOTAL	302419	158	1466938	3669	1782175	3970	1769191	464084	305315	24347

1/ From reports of processors. Frozen salmon reported in processed weight, and cases on a basis of 48 one pound cans.

ACE10323581

Table 29. Prince William Sound Area case pack and pounds of frozen salmon by species, 1972 - 1979. 1/

	Kings		Sockeye		Cohos		Pinks		Chums	
Year	Pounds Frozen	Cases	Pounds Frozen	Cases	Pounds Frozen	Cases	Pounds Frozen	Cases	Pounds Frozen	Cases
1972	839638	177	40736	81632	672305	5523	23586	3102	19673	568
1973	611482	164	222978	40850	1293847	6053	39584	73635	292380	5928
1974	408662	1507	62725	68576	2620	14127	0	30335	1187	1092
1975	293657	183	553541	24281	564579	1254	0	133358	63154	626
1976	758172	151	1294110	99436	918509	5564	351944	121762	514854	230
1977	356567	253	2741166	41860	861761	2420	1232766	178151	931911	3885
1978	581353	139	2518147	15664	1690871	4482	229744	117863	705796	3937
1979	302419	158	1466938	3669	1782175	3970	1769191	474084	305315	2434

1/ Case pack on basis of 48 one pound cans per case. Frozen salmon in round weight 1972 - 77. From 1978 frozen salmon reported in processed weight.

ACKNOWLEDGEMENTS

The Commercial Fisheries Division, Finfish Section, Prince William Sound Area, employed 10 permanent employees and 25 seasonal employees in 1979 who participated in various area management programs.

Thanks is extended to all personnel for a successful 1979 fisheries season.

Special acknowledgement is given to Peter J. Fridgen and Michael McCurdy for their contribution in preparation of the contents of this report. Also, to Jeannette Bailey for editorial comments and the task of typing and collating this report.

Following is a list of personnel, general duty assignments and duties of employment.

Permanent Employees

Ralph B. Pirtle	Area Management Biologist
Peter J. Fridgen	Assistant Area Management Biologist
Michael McCurdy	Research Biologist, Project Leader
Kenneth Roberson	Research Biologist, Project Leader
Keith Webster	Research Biologist, Project Leader
John M. Jackson	Fisheries Technician V
Kenneth Carrasco	Fisheries Technician III
Jeannette Bailey	Clerk - Stenographer III
Janice Shaw	Clerk Typist III
Kathy Adler	Clerk Typist III

Seasonal Employees

Gary Anderson	** Pre-emergent Fry Index	3/19 - 4/ 5
	Eshamy Weir	6/ 4 - 9/ 4
Shannon Butler	* Incubation Studies	7/ 2 - 9/10
Diane Calamari	* Incubation Studies	9/10 - 9/27
Nancy Davidson	* Miles Lake Sonar	5/10 - 8/24
Janelle Eklund	* Glennallen Office	1/ 2 - 1/15
Will Fancher	* Subsistence Fishery	6/ 1 - 8/15
Bruce Gordon	* Tanada Weir	6/18 - 8/21
Russell Holder	* Incubation Studies	9/10 - 9/21
Robert Hobbs	Eshamy Weir	6/ 4 - 9/ 4
	* Incubation Studies	9/ 7 - 9/28
Randy Hughes	* Tanada Weir	5/21 - 8/ 9
Debra James	Catch Sampling	4/ 1 - 6/15
Leon Metz	* Subsistence Fishery (Office)	11/26 - 12/31
Rance Morrison	* Miles Lake Sonar	
	Incubation Studies	5/10 - 10/ 9
Alison Rabich	* Subsistence Fishery	5/30 - 7/13
P. J. Roberts	Data Control	5/ 1 - 10/31
Kristi Roper	* Glennallen Office	5/29 - 7/30
Dale Russell	* Incubation Studies	5/ 8 - 8/24
Randall Rust	Coghill Weir, Stream Surveys	6/ 4 - 9/ 4

Seasonal Employees, cont.

Harold Schooler	* Miles Lake Sonar	8/16 - 8/21
Keith Shultz	* Subsistence Fishery	5/30 - 9/21
	* Incubation Studies	
Richard Smith	* Miles Lake Sonar	3/20 - 8/17
	* Glennallen Office	
Peter Strunk	* Miles Lake Sonar	5/27 - 8/24
Margery Thomason	* Incubation Studies	5/21 - 6/26
Gary Todd	* Incubation Studies	9/10 - 9/28
Johnny Wilson	** Pre-Emergent Fry Index	3/19 - 4/ 5

* Projects under the supervision of Kenneth Roberson.

** Project under the supervison of Michael McCurdy

Appendix A. A sequential listing of fish and shellfish processors, location of operation, size of cans, lines of machinery and type of product processed in 1979.

Name, Executive, Address, Location of Operation	Size of Cans Lines of Machinery	Type of Product
Alaska Packers Association 1/ Merle Wickett, Supt. P. O. Box 380 Cordova, AK 99574		Salmon
Al-Aska Trading Col, Ltd. 4973 Eagle Street Anchorage, AK 99504		Salmon
Alaska Sea Products P. O. Box 1477 Seward, AK 99664		Shrimp
Robert Bassett P. O. Box 1472 Valdez, AK 99686		Halibut
Bayside Cold Storage, Inc. Fred Pettingill, Supt. P. O. Box 636 Cordova, AK 99574		Salmon
Bergit Fishing Company Stanley Samuelson, Owner P. O. Box 936 Cordova, AK 99574		Sac Roe, Roe on Kelp, Salmon
Steven Brittain P. O. Box 425 Valdez, AK 99686		Halibut, Shrimp
Dick D. Center Star Route 6026 Eagle River, AK 99577		Halibut, Bottom Fish
Chugach - Alaska Fisheries Al O'Leary, Supt. P. O. Box 120 Cordova, AK 99574	1 line - 1/4 lb. 2 lines - 1/2 lb. 2 lines - 1 lb.	Salmon
Mackey L. Crumbly P. O. Box 1201 Valdez, AK 99686		Halibut
Dragnet Fisheries P. O. Box 3992 Kenai, AK 99611		Salmon

Name, Executive, Address, Location of Operation	Size of Cans, Lines of Operation	Type of Product
East Point Seafoods P. O. Box 1637 Kodiak, AK 99615		Herring Sac Roe
Farm-N-Sea of Alaska, Inc. (Arctic Coast Fisheries) P. O. Box 748 Valdez, AK 99686		Salmon, Crab, Shrimp, Herring Sac Roe, Bottom Fish
Favco P. O. Box 2323 Anchorage, AK 99510		Salmon, Shrimp
Harold Ganong SRC Box 254 Valdez, AK 99686		Halibut
Glacier Packing Company Barbara Jensen, Supt. P. O. Box 294 Cordova, AK 99574	6 1/2 oz. - hand pack 7 1/2 oz. - hand pack	Salmon
C. H. Harter P. O. Box 754 Valdez, AK 99686		Halibut
Axel Janson P. O. Box 576 Cordova, AK 99574		Bottom Fish (bait)
Bud Janson, Jr. P. O. Box 576 Cordova, AK 99574		Bottom Fish (bait)
Johnson Enterprises P. O. Box 460 Cordova, AK 99574		Bottom Fish (bait)
Willard H. Johnson P. O. Box 84 Palmer, AK 99645		Halibut
Kodiak King Crab, Inc. P. O. Box 1457 Kodiak, AK 99615		Herring Sac Roe, Shrimp
Little Fisherman Shoppe 555 W. Northern Lights Blvd. Anchorage, AK		Shrimp, King Crab

Name, Executive, Address, Location of Operation	Size of Cans, Lines of Operation	Type of Product
M S P Corporation C. Ross Mullins, Supt. P. O. Box 1249 Cordova, AK 99574		Herring Roe on Kelp
Charles Macy P. O. Box 614 Valdez, AK 99686		Halibut
Mohr & Johannessen P. O. Box 483 Cordova, AK 99574		Bottom Fish (bait)
Leo E. Moore P. O. Box 783 Valdez, AK 99574		Halibut
Morpac, Inc. John Hewitt, Supt. P. O. Box 638 Cordova, AK 99574	1 line - 7 3/4 oz.	Salmon, Dungeness & Tanner Crab, Razor Clams, Halibut, Herring Sac Roe, Bottom Fish (bait)
Richard Newby 2510 Aspen Drive Anchorage, AK 99503		Herring Roe on Kelp
North Coast Seafoods Processors James Nagai, Supt. P. O. Box 1262 Cordova, AK 99574		Herring Sac Roe, Herring Roe on Kelp
North Pacific Processors, Inc. Ken Roemhildt, Supt. P. O. Box 1040 Cordova, AK 99574	1 line - 1/4 lb. 1 line - 1/2 lb. 1 line - 1 lb.	Salmon, Salmon Eggs, Dungeness, Tanner & King Crab, Halibut, Herring Sac Roe and Bait Herring
Osmar's Ocean Specialties P. O. Box 38 Clam Gulch, AK 99568		Salmon, Herring Sac Roe
Pacific Pearl Fisheries P. O. Box 601 Kodiak, AK 99615		Herring Sac Roe
Pelican Cold Storage P. O. Box 601 Pelican, AK 99632		Herring Sac Roe, Salmon

Name, Executive, Address, Location of Operation	Size of Cans Lines of Machinery	Type of Product
Michael Rentel General Delivery Valdez, AK 99686		Shrimp
S A Packers P. O. Box 199 Seldovia, AK 99663		Salmon
St. Elias Ocean Products, Inc. James Poor, Supt. P. O. Box 548 Cordova, AK 99574	1 line - 1/4 lb. 1 line - 1/2 lb. 1 line - 1 lb. 1 line - 4 lb.	Salmon, Dungeness, King & Tanner Crab, Razor Clams, Halibut, Herring Sac Roe, Bait Herring, Bottom Fish
Salamatoff Seafoods Drawer 4220 Kenai, AK 99611		Salmon
Sea Catch, Inc. P. O. Box 3171 Kenai, AK 99611		Herring Sac Roe
Sea Products Export 4000 W. 50th Suite 2 Anchorage, AK 99502		Salmon
Seward Fisheries, Inc. P. O. Box 516 Seward, AK 99664		Salmon, Herring Sac Roe, Bait Herring, Halibut, Bottom Fish
Seward Marine Services P. O. Box 335 Seward, AK 99664		Herring Sac Roe
Taylor Aquatic Enterprises Gary Taylor, Supt. P. O. Box 131 Cordova, AK 99574		Herring Roe on Kelp
Tenth & M Lockers 1020 M Street Anchorage, AK 99501		Halibut, Bottom Fish
Virgin Bay Kelp Company Steve Smith, Supt. P. O. Box 277 Cordova, AK 99574		Herring Roe on Kelp
Whitney - Fidalgo Seafoods 2/ Alan "Slim" Jorgenson, Supt. P. O. Box 670 Cordova, AK 99574		Herring Sac Roe, Salmon, Salmon Eggs

Name, Executive, Address, Location of Operation	Size of Cans Lines of Machinery	Type of Product
Whittier Fisheries P. O. Box 657 Whittier, AK 99502		Salmon, Shrimp
Thomas J. Williams P. O. Box 979 Cordova, AK 99574		Dungeness Crab
Western Alaska Seafoods (B & B Fisheries) P. O. Box 667 Kodiak, AK 99615		Herring Sac Roe

1/ Morpac, Inc. customed canned salmon for Alaska Packers Association.

2/ St. Elias Ocean Products, Inc. customed canned salmon for Whitney - Fidalgo Seafoods.

Appendix B. Coghill River daily sockeye salmon weir count; air and water temperatures in degrees centigrade; precipitation in millimeters; and cloud cover, 1979

Date	Daily Count Sockeye	Weekly Total	Cumulative Total	Temperatures Air Min.	Air Max.	Water 9 am	Water 9 pm	Precip. 9 am	Cloud Cover 9 am	Cloud Cover 9 pm
6/ 7	0			4	15	6	6	.02	3	3
8	11			5	16	6	6	0	2	2
9	0	11	11	0	21	7	7	0	1	1
10	22			0.5	19	8	8	0	3	3
11	131			9	17	8	8	1.016	3	3
12	327			1	20.5	9	9	0	1	1
13	136			2	20.5	9	9	0	3	3
14	598			0.5	21	9.5	9.5	0	1	1
15	1,430			0.5	21.5	10.5	10	0	2	2
16	334	2,978	2,989	7	16	9.5	9.5	9.652	4	4
17	975			5.5	17	10	10.5	1.016	3	3
18	280			5.5	20	9	10	0	1	1
19	577			5.5	13.5	9	9.5	.508	4	4
20	439			6.5	13.5	9	9.5	4.572	4	3
21	381			7.5	19	9.5	10.5	0	2	1
22	1,524			1	21	9.5	9.5	0	1	1
23	1,607	5,783	8,772	1	20.5	9.5	10	0	1	2
24	4,516			9	14	9.5	10	4.826	4	4
25	2,002			6	12.5	9.5	10.5	42.418	4	4
26	2,370			5.5	11.5	10.5	12	25.908	4	3.5
27	896			5.5	11	12	12	13.208	4	4
28	1,027			5	12.5	11	11	6.604	4	3
29	1,407			1	16.5	10	10	0	3	2
30	1,743	13,961	22,733	1	20	11	10.5	0	1	2
7/ 1	5,565			5.5	22	11	11	0	1	1
2	8,295			3.5	25.5	11.5	11	0	1	1
3	3,047			5.5	26	11	10.5	0	1	1
4	600			4.5	22.5	11	10.5	4.318	1	4
5	1,540			5.5	14	9.5	10.5	13.970	4	4
6	792			7	15	10	10.5	4.064	4	4
7	976	20,815	43,548	7.5	17	10.5	11	0	3	4
8	637			12	14.5	10	10	10.668	4	4
9	865			12	18.5	10.5	10	0	3	3
10	812			12.5	20.5	10	10.5	1.270	3	1
11	542			11	18.5	10	10	.762	4	4
12	408			8.5	16	10	11	18.034	4	2
13	158			4.5	20	10.5	10.5	0	2	3
14	109	3,531	47,079	8.5	15	10	10.5	18.542	4	4
15	281			12	16.5	10	11	17.526	4	3
16	278			6.5	18.5	10	10.5	0	3	1
17	217			6	23	11	11.5	0	1	3
18	120			8.5	20	11	11.5	.508	2	3
19	67			8	21	11.5	12	5.334	2	1
20	77			4	20	11	11.5	0	3	3
21	59	1,099	48,178	9	14.5	11	11.5	14.732	4	4
22	103	103	48,281	8	16.5	12	11	3,048	4	4

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1/ Cloud cover code: 1 = clear, 2 = less than 1/2 cloud cover, 3 = greater than 1/2 cloud cover, 4 = complete cloud cover.

Weir count of other species: 1 king, 827 chums, 46,331 pinks.

Appendix C. Eshamy River daily sockeye salmon weir count; air and water temperatures in degrees centigrade; precipitation in millimeters; and cloud cover, 1979.

Date	Daily Count Sockeye	Weekly Total	Cumulative Total	Temperatures Air Min.	Air Max.	Water 9 am	Water 9 pm	Precip. 9 am	Cloud Cover 1/ 9 am	Cloud Cover 1/ 9 pm
6/10	0			3.3	22.2				4	3
11	0			4.4	21.1	7	5		4	1
12	0			4.4	26.6	8	8		2	1
13	0			4.4	23.3	8	7	0	4	1
14	0			4.4	26.6	8	10	0	1	1
15	0			4.4	25	9	10	0	1	4
16	0	0	0	12.2	18.8	10	10		4	4
17	0			7.2	20	10	10		4	2
18	0			3.8	23.3	10	10		4	2
19	0			12.2	20	11	10		4	4
20	0			8.3	18.8	12	11	0	4	4
21	0			7.7	21.1	12	12	0	3	1
22	0			6.6	24.4	12	13	0	1	1
23	0	0	0	6.6	24.4	12	13	0	1	1
24	0			10	18.8	14	14	0	4	4
25	0			8.8	16.6	14	13	7	4	4
26	0			6.6	18.8	13	14	2.5	4	2
27	1			4.4	17.7	14	13	0	4	4
28	6			5	17.7	13	13	1.6	4	2
29	10			2.2	21.1	13	13	0	3	1
30	1	18	18	4.4	24.4	14	14	0	1	1
7/ 1	1			5.5	26.6	14	15	0	1	1
2	0			7.7	28.8	15	15	0	1	1
3	2			10	31.1	16	16	0	1	1
4	0			10	19.4	16	16	0	1	4
5	4			11.1	18.8	16	16	.6	4	4
6	2			10	20	15.5	15	.8	4	4
7	2	11	29	10	18.8	15.5	15	.9	4	4
8	7			11.1	17.7	15.5	15	.3	4	4
9	0			10	17.7	15.5	15.5	.8	4	2
10	2			10	20	15	15.5	.3	4	2
11	2			10	18.8	16	16	.3	4	4
12	2			10	18.8	15	16	1.7	4	2
13	23			8.8	21.1	16	15	0	2	4
14	6	42	71	10	20	16	15.5	1.6	4	4
15	9			9.4	18.8	15.5	16	1.2	4	4
16	36			10	21.1	15.5	16	.7	4	2
17	10			10	22.2	16	16	0	2	4
18	6			8.8	21.1	16	16.5	.5	2	4
19	13			11.1	24.4	17	16.5	0	2	1
20	18			8.8	24.4	17	17	0	4	4
21	4	96	167	11.1	22.2	17	16.5	0	4	4
22	8			11.1	22.2	17	17	.5	4	4
23	13			11.1	19.4	17	16.5	.2	4	4
24	0			10.5	20	16	16	3.2	4	4
25	8			11.1	20	16	16	3.3	4	3
26	0			8.8	26.6	16.5	16	.2	1	3
27	4			11.6	23.3	16	16.5	0	1	3
28	2	35	202	10	23.3	16.5	16.5	0	1	3